The Nature of Hypnosis

edited by SHOR and ORNE

The nature of Hypnosis.

THE NATURE OF HYPNOSIS

Selected Basic Readings



EDITED BY

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The Magnetized Tree of Armand Puységur (1784)

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I. HISTORIC

1

Secret Report on Mesmerism, or Animal Magnetism



Jean Sylvain Bailly, and others

The commissioners entrusted by the king with the examination of animal magnetism have drawn up a report to be presented to his Majesty which ought perhaps to be published. It seemed prudent to suppress an observation not adapted for general publication, but they did not conceal it from the king's minister. This minister has charged them to draw up a note designed only for the eyes of the king.

This important observation concerns morality The commissioners have ascertained that the chief causes of the effects ascribed to animal magnetism are contact, imagination, and imitation. They have observed that the crisis occurs more frequently in women than in men. The first cause of this fact consists in the different organizations of the two sexes. Women have, as a rule, more mobile nerves; their imagination is more lively and more easily excited; it is readily impressed and aroused. This great mobility of the nerves, since it gives a more exquisite delicacy to the senses, renders them more susceptible to the impressions of touch. In touching any given part, it may be said that they are touched all over the body, and the mobility of their nerves also inclines them more readily to imitation. It has been observed that women are like musical strings stretched in perfect unison; when one is moved, all the others are instantly affected. Thus the commissioners have repeatedly observed that when the crisis occurs in one woman, it occurs almost at once in others also.

Franklin (Chairman), Bory, Lavoisier, Bailly (Reporter), Majault, Sallin, d'Arcet, Guillotin, Le Roy. Paris, August 11, 1784 Quoted in extenso in A. Binet, and C. Féré. *Animal magnetism.* French original, 1887 English translation, N.Y.: D. Appleton and Co., 1888 Pp 18–25.

This organization explains why the crises in women are more frequent, more violent, and of longer duration than in men; it is nearly always due to their sensitive nerves. Some crises are due to a hidden, but natural cause, to an emotional cause to which women are more or less susceptible, and which, by a remote influence, accumulates these emotions and raises them to their highest pitch, thus producing a convulsive state which may be confounded with the ordinary crises. This is due to the empire which nature has caused one sex to exert over the other, so as to arouse feelings of attachment and emotion. Women are always magnetized by men; the established relations are doubtless those of a patient to the physician, but this physician is a man, and whatever the illness may be, it does not deprive us of our sex, it does not entirely withdraw us from the power of the other sex; illness may weaken impressions without destroying them. Moreover, most of the women who present themselves to be magnetized are not really ill; many come out of idleness, or for amusement; others, if not perfectly well, retain their freshness and their force, their senses are unimpaired and they have all the sensitiveness of youth; their charms are such as to affect the physician, and their health is such as to make them liable to be affected by him, so that the danger is reciprocal. The long-continued proximity, the necessary contact, the communication of individual heat, the interchange of looks, are ways and means by which it is well known that nature ever effects the communication of the sensations and the affections.

The magnetizer generally keeps the patient's knees enclosed within his own, and consequently the knees and all the lower parts of the body are in close contact. The hand is applied to the hypochondriac region, and sometimes to that of the ovarium, so that the touch is exerted at once on many parts, and these the most sensitive parts of the body.

The experimenter, after applying his left hand in this manner, passes his right hand behind the woman's body, and they incline towards each other so as to favour this twofold contact. This causes the closest proximity; the two faces almost touch, the breath is intermingled, all physical impressions are felt in common, and the reciprocal attraction of the sexes must consequently be excited in all its force. It is not surprising that the senses are inflamed. The action of the imagination at the same time produces a certain disorder throughout the machine; it obscures the judgment, distracts the attention; the women in question are unable to take account of their sensations, and are not aware of their condition.

The medical members of the commission were present to watch the treatment, and carefully observed what passed. When this kind of crisis is approaching, the countenance becomes gradually inflamed, the eye brightens, and this is the sign of natural desire. The woman drops her head, lifts her hand to her forehead and eyes in order to cover them; her habitual modesty is unconsciously aroused, and inspires the desire of concealment.

The crisis continues, however, and the eye is obscured, an unequivocal sign of the complete disorder of the senses. This disorder may be wholly unperceived by the woman who experiences it, but it cannot escape the observant eye of the physician. As soon as this sign has been displayed, the eyelids become moist, the respiration is short and interrupted, the chest heaves rapidly, convulsions set in, and either the limbs or the whole body is agitated by sudden movements. In lively and sensitive women this last stage, which terminates the sweetest emotion, is often a convulsion; to this condition there succeed languor, prostration, and a sort of slumber of the senses, which is a repose necessary after strong agitation.

This convulsive state, however extraordinary it may appear to the observers, is shown to have nothing painful or contrary to nature in it, from the fact that, as soon as it is over, it leaves no unpleasant traces in its subjects There is nothing disagreeable in the recollection, but, on the contrary, the subjects feel the better for it, and have no repugnance to enter anew into the same state Since the emotions they experience are the germs of the affections and inclinations, we can understand why the magnetizer inspires such attachment, an attachment likely to be stronger and more marked in women than in men, so long as men are entrusted with the task of magnetism Undoubtedly many women have not experienced these effects, and others have not understood the cause of the effects they experienced, the more modest they are, the less they would be likely to suspect it But it is said that several have perceived the truth, and have withdrawn from the magnetic treatment, and those who have not perceived it ought to be deterred from its pursuit

The magnetic treatment must necessarily be dangerous to morality. While proposing to cure diseases which require prolonged treatment, pleasing and precious emotions are excited, emotions to which we look back with regret and seek to revive, since they possess a natural charm for us, and contribute to our physical happiness But morally they must be condemned, and they are the more dangerous as it becomes more easy for them to become habitual A condition into which a woman enters in public, amid other women who apparently have the same experience, does not seem to offer any danger; she continues in it, she returns to it, and discovers her peril when it is too late Strong women flee from this danger when they find themselves exposed to it; the morals and health of the weak may be impaired

Of this danger M Deslon is aware On the 9th of last May, at a meeting held at M Deslon's own house, the lieutenant of police asked him several questions on this point in the presence of the commissioners. M. Lenoir said to him, 'In my capacity as lieutenant-general of police, I wish to know whether, when a woman is magnetized and passing through the crisis, it would not be easy to outrage her.' M. Deslon replied in the affirmative, and it is only just to this physician to state that he has

always maintained that he and his colleagues, pledged by their position to act with probity, were alone entitled and privileged to practise magnetism. It must be added that although his house contains a private room originally intended for these crises, he does not allow it to be used. The danger exists, however, notwithstanding this observance of decency, since the physician can, if he will, take advantage of his patient. Such occasions may occur daily and at any moment; he is sometimes exposed to the danger for two or three hours at a time, and no one can rely on being always master of his will. Even if we ascribe to him superhuman virtue, since he is exposed to emotions which awaken such desires, the imperious law of nature will affect his patient, and he is responsible, not merely for his own wrong-doing, but for that he may have excited in another

There is another mode of producing convulsions, a mode of which the commissioners have obtained no direct and positive proof, but which they cannot but suspect; namely, a simulated crisis, which is a signal for, or produces many others, out of imitation. This expedient is, at any rate, needed to hasten or maintain the crises which are an advantage to magnetism, since without them it could not be carried on

There are no real cures, and the treatment is tedious and unprofitable. There are patients who have been under treatment for eighteen months or two years without deriving any benefit from it; at length their patience is exhausted, and they cease to come. The crises serve as a spectacle; they are an occupation and interest, and, moreover, they are to the unobservant the result of magnetism, a proof of the existence of that agent, although they are really due to the power of the imagination

When the commissioners began their report, they only stated the result of their examination of the magnetism practised by M Deslon, to which the order of the king had restricted them, but it is evident that their experiments, observations, and opinions apply to magnetism in general M. Mesmer will certainly declare that the commissioners have not examined his method, proceedings, and the effects they have produced. The commissioners are undoubtedly too cautious to pronounce on that which they have not examined, and with which they are not acquainted, yet they must observe that M Deslon's principles are those of the twenty-seven propositions printed by M Mesmer in 1779.

If M Mesmer has enlarged his theory, it thereby becomes more absurd, the heavenly influences are only a chimaera, of which the fallacy has long been recognized. The whole theory may be condemned beforehand, since it is based upon magnetism; and it has no reality, since the animal magnetic fluid has no existence. Like magnetism, this brilliant theory exists only in the imagination. M. Deslon's mode of magnetizing is the same as that of M. Mesmer, of whom he is the disciple. When we place them together, we see that they have treated the same patients, and, consequently, have

pursued the same process; the method now in use by M. Deslon is that of M Mesmer.

The results also correspond, the crises are as violent and frequent, and the same symptoms are displayed under the treatment of M. Deslon and of M Mesmer Although the latter may ascribe an obscure and inappreciable difference to his method, the principles, practice, and results are the same. Even if there were any real difference, no benefit from such treatment can be inferred, after the details given in our report and in this note, intended for the king

Public report declares that M Mesmer's cures are not more numerous than those of M Deslon There is nothing to prevent the convulsions in this case also from becoming habitual, from producing an epidemic, and from being transmitted to future generations such practices and assemblies may also have an injurious effect upon morality

The commissioners' experiments, showing that all these results are due to contact, to imagination and imitation, which explaining the effects produced by M Deslon, equally explain those of M Mesmer It may, therefore, reasonably be concluded that, whatever be the mystery of M Mesmer's magnetism, it has no more real existence than that of M Deslon, and that the proceedings of the one are not more useful nor less dangerous than those of the other

(Signed) FRANKLIN, BORY, LAVOISIER, BAILLY, MAJAULT, SALLIN, D'ARCET, GUILLOTIN, LE ROY.

Paris, August 11, 1784

2

Observations on the Two Reports of the Commissioners Named by the King to Investigate Animal Magnetism



Charles d'Eslon

I submitted the new magnetic agent which I employ in the treatment of disease to examination by the Commissioners whom His Majesty chose for this purpose All of them, with the exception of one[1], judged that animal magnetism does not exist, and that the means employed to activate it can have, over an extended period, only ill effects.[2]

Is this decision just?

The object of this pamphlet is to review rapidly the facts which the Commissioners set forth and the conclusions which they draw from these facts in their own words. If by these simple means I do not demonstrate the reality of the agent which they contest, I will at least prove that they have not demonstrated either its nullity or its danger.

The existence of a universal fluid is not a new discovery. In both ancient and modern times many superior thinkers did not doubt that the celestial

From Eslon, Charles de *Observations sur les deux rapports de MM les Commissaires nommés par Sa Majesté, pour l'examen du Magnétisme animal* September 6, 1784 Paris: Clousier 1784. Translated by Chval, Dan. Edited and abridged by R. E. Shor.

[1] Mr. A L. de Jussieu.

[2] Quotations from the report drafted by the Commissioners of the Academy of Sciences and the Faculty of Medicine are designated by the numeral I, of the Royal Society of Medicine, by the numeral II.

bodies and the earth were immersed in a common element, which, insinuating itself into all the parts of these bodies, modified them by communicating to them the varied impressions of movement. Today chemists use the word *Phlogiston* to express just this. Electric and magnetic fluids, water, air, and fire, are but modifications of the universal fluid. It is always basically the same, but it becomes perceptible in these diverse phenomena only by virtue of its varied effects—such as flame and heat in the case of fire, attraction of iron in that of the magnet, and so on. The existence of these causes might be denied by saying of them what the Commissioners say of animal magnetism: "They escape the senses: they have no taste and no odor; they move noiselessly, and envelope or penetrate you without touch or sight informing you of their presence." (I, p 9)

Such were my principles when I described animal magnetism to the Commissioners This agent, I told them, is neither visible nor tangible; but I will establish its existence by demonstrating its continued action and curative effects in the treatment of disease The Commissioners acknowledge that I disclosed my principles to them; that I presented these principles in writing; that I instructed them in the practice of animal magnetism; and that I acquainted them with the contents of the baquets (I, p. 5). But despite my desire to see them coordinate theory and practice, they constantly neglected to concern themselves with the source of the fluid (I, p 7) Because it is imperceptible as such, the existence of animal magnetism can be demonstrated only in the treatment of disease. Therefore I invited the Commissioners to my treatments to visit with my patients and to follow their progress They describe what they saw as follows:

> Nothing is more astonishing than this spectacle (I, p 7) You have to see it to believe it We were equally surprised by the profound calm of some of these patients and by the agitation which animates the others, by the various accidents which occur repeatedly and by the sympathies which are established The patients seek out each other exclusively, run to one another, smile, converse affectionately and mutually ease their crises All of them are subject to the magnetist They may appear to be exhausted, but a word, a look, a sign from him revives them. These uninterrupted effects forced us to recognize the presence of a *great power* which excites and controls the patients and of which the magnetist seems to be the depositary.

In the first moment of their surprise the Commissioners devoted themselves wholeheartedly to the examination of the patients Yet they failed to give an account of some of these cases, among them the following three:

(1) Since last April 17 I have had at my treatments a patient who has been disabled for three years She was considered pregnant, but in fact she had common dropsy Messrs. Maugras and Ferrand had been following the patient's progress. She told the Commissioners that on the very first day of treatment she had flooded, although during the preceding

eighteen months all evacuation of that kind had been suppressed, and that she now found the swelling considerably diminished. She added that her urine, which until then had been perfectly clear, had become cloudy and more abundant.[3] The following is a record of the examination which she had twenty-four hours later:

> We examined the woman afflicted with dropsy. The size of her stomach seemed to us noticeably diminished, although according to her it varied several times a day of itself She measured herself several times during her illness, always in the morning after getting up. The measurement she gave us for the last June 4 was three feet three and one-half inches; today, June 14, it is three feet half an inch by our own measurement. (Signed A. L. de Jussieu and Caille.)

(2) On May 18 the Commissioners brought me another patient named Francoise Lamotte. As the result of a strain she had a swelling in her hand and considerable pain in the joint of the arm and in the shoulder-blade. This pain having increased she went to the Saint Sulpice Hospital where vesicants were applied. Nine months after her departure from that Hospital she was still taking other remedies which did not help her. She had reached the point where she could no longer move her arm or her forearm and could just barely move her fingers All she could do was lift her hand and close it, but with some difficulty and pain.[4] Here is an account of the examination she underwent the following June 14:

> Today, June 14, we examined the above-named Françoise Lamotte. She is able to move her hand with more facility and can lift it to her head. She can stretch her arm and forearm, but the flexing movement can be made only with the help of the other hand. She feels pain in her shoulder only when touched there; but the pain in her elbow and wrist is constant Also, her shoulder is a little less swollen than it was. It seems that the pains vary greatly with changes in the weather. (Signed Caille, Andry, and A. L. de Jussieu.)

(3) On May 22 these same gentlemen brought me a third patient named Louis-Etienne P., aged about ten Their signed report verified: "that all the glands in this child's neck and left armpit were swollen, one badly, to the size of a small pigeon's egg, and that this disease could be regarded as scrofulous."

And here are the results of a later examination:

> Today, June 14, we examined Louis-Etienne P. We find the glands in the neck as well as those in the armpit diminished in size. One large gland is ten lines in diameter. There are nine most sensitive glands in the neck

[3] A written report of her condition and statements, signed by Commissioners Poissonier, de Jussieu, Mauduit, Caille, Lavoisier, and Andry, is in my possession.

[4] Written testimony in my possession, signed as in footnote[3] above.

and chin, not counting the small ones, the number of which cannot be reliably ascertained. (Signed A. L. de Jussieu.)

It is hardly necessary to remark how personally satisfying I found these first reports. Such happy preludes gave me the hope of convincing the Commissioners, by additional tests, of the truth with which I myself was imbued. But these hopes were soon destroyed. It was not long before the Commissioners abandoned the firmly agreed-upon procedure, already executed in part, *of examining the patients.* Why did they abandon it? This is their attempt to justify the reversal:

> The Commissioners soon judged that the public treatments could not become the site of their experiments. The multiplicity of the effects is a first obstacle; one sees too many things at once to be able to see any one in particular well Besides, the distinguished patients who come for treatment might be annoyed by the questions. Thus they decided that they did not need to follow the treatments It would suffice if a few of them dropped in occasionally. (I, p 3)

The gentlemen of the Royal Society took an even stronger stand: "We considered it necessary to neglect rare, unusual and marvelous cases, such as the renewal of convulsive movements merely by pointing a finger or an iron conductor through the back of a well-upholstered chair or through a door or a wall; and also sensations experienced approaching a tree, a pond, or any body or place formerly magnetized" (II, p 21)

How then to prove the contested existence of an unknown agent if some observers refuse to examine its curative effects in the treatment of disease, and others its purely physical effects?

As for me, I insisted on our original agreement, "continuing to demand the employment, principally and almost exclusively, of the method of examining the curative effects" (I, p. 11)[5]

The following are the reasons why the Commissioners did not feel obliged to comply:

> 'Nature cures disease, said the father of Medicine Centuries of constant observation have proved that Nature alone, without any treatment, cures a great number of patients it is powerful enough to support life despite a bad diet and sometimes to triumph over disease and remedy both How then is one to assure oneself by the treatment of patients of the action of an agent the existence of which is contested, when one can question the effect of medicaments the existence of which is not problematic? (II, pp. 11-13)

If the Commissioners can advance this argument, what is one to think of Medicine and the medicaments it dispenses so profusely? As for myself,

[5] The exceptions implied by the word *almost* were in no sense ever part of our agreement. When I saw the agreement was being broken, I requested in a written memo to the Minister that three Counsellors of State be added to the Commission, to no avail.

in my capacity as a physician I have always been aware that the properties of Quinine, of Opium, of Emetic, or of any remedy can be known only by its repeatedly observed effects. I felt that the most certain means to judge animal magnetism was also to observe, to weigh, to examine its curative effects. When the Commissioners rejected this experimental procedure after having agreed to it, I vigorously protested the inadequate methods they proposed to substitute. They preferred "to observe the action of animal magnetism in its momentary effects on the animal economy and in the perceptible changes it produces there; thus they had to limit themselves to purely physical evidence, that is, to the momentary effects of the fluid on the animal body." (I, pp. 11 and 15)

If the Commissioners had informed me beforehand that they would thus limit their investigation, I would have taken every opportunity to warn them of its insufficiency. Perhaps I might even have convinced them by pointing out that in only the smallest number of patients does magnetism produce momentary and perceptible effects; that many patients are cured without experiencing the least sensation; and that among people who are more sensitive and more susceptible to momentary action, to the purely physical effects, the impressions are always infinitely varied. Furthermore, I would have made them aware that patients sometimes experience crises without being touched, without sitting at the baquet, and without receiving direction; whereas, at other times, patients treated, touched, and seated at the baquet will pass hours and sometimes days without experiencing anything.

The slightest diligence in attending my treatments would have given the Commissioners occasion to make these observations themselves and doubtless have brought them around to my original plan. In any case, if they had refused I would have been convinced at the outset of the gross insufficiency of the investigation they proposed and I would have considered it useless, even dangerous to submit my theory and procedures to them

The new plan devised by the Commissioners served to lead them from error to error. From this moment on there were no more contradictory written testimonies For the most part they conducted their experiments without my knowledge. The following is their own account of their actions:

> They decided to make their first experiments on themselves; but their primary concern was and had to be not to pay too close attention to what was happening within them They were magnetized by Mr d'Eslon or by his disciples, going to the treatments once a week for this purpose, and they remained there as long as two and a half hours at a time None of them felt anything, or at least nothing of a nature to be attributed to Magnetism. (I, pp. 16–17)

It is obvious that these gentlemen made it difficult for themselves to experience sensations in sessions which they repeated but once a week, with the amazing precaution not to pay too close attention to what was

happening within them. The negative proof that none of them felt anything is irrelevant since I had already told them that in a state of health one does not experience the action of magnetism, and even in a state of sickness one is frequently immune to it.

But the Commissioners then contradict their own testimony by describing a number of experiences which could very well be attributed to magnetism:

> One of them experienced a slight pain in the pit of the stomach as a result of the great pressure applied to this part. The pain lasted all that day and the next, and was accompanied by a feeling of fatigue and discomfort.
>
> The afternoon of a day on which he was magnetized a second Commissioner experienced an irritation of the nerves, to which he is highly susceptible.
>
> A third, endowed with greater sensitivity, and certainly with an extreme mobility of the nerves, experienced more marked pains and irritations. (I, p. 18)

Also relevant are the unreported experiences of Mr. Caille of the Royal Society At the baquet, without being touched or magnetized by anyone, he felt considerable heat, first in the pit of his stomach, then throughout his whole body This was followed by nausea and an urge to vomit which he could avoid only by abandoning the iron rod of the baquet. He reported these effects immediately to more than twenty of my patients, and then to the Lieutenant-General of the Police, at whose house we dined together the same day.

There then are four Commissioners who experienced the effects of magnetism. I must point out that in this section of the report they limit themselves to the conclusion that magnetism has little or no effect on a subject in a state of health It is only at the end of the report that they absolutely deny the existence of this agent

From these tests on themselves the Commissioners passed to other experiments on patients, seven of whom they assembled at Mr. Franklin's in Passy. Four of these seven felt nothing, the three others experienced various reactions. The report states.

> Francois Grenet's eye watered and caused him pain Mrs. Charpentier complained of pains in her head when the magnetist directed his finger there She asserted that she could not breathe when he placed his finger before her face The repeated movement of the finger from above to below caused her to manifest precipitated movements of the head and shoulders. It seems she experienced the same effects with her eyes closed. The magnetist placed his fingers under her nose while her eyes were closed; she said she would get sick if this were continued. Joseph Ennuye experienced effects of the same kind but much less marked. (I, pp 18 and 21)

The Commissioners might have characterized these allegedly less marked effects more accurately by mentioning that this patient felt all the directions so strongly that he could not hold himself on his chair.

The Report continues: "These effects merit the attention of the Commissioners and demand a scrupulous examination" (I, p 21) Yet by their own testimony, what did the Commissioners proceed to do? To fix their ideas in this regard, they decided to test the patients in other circumstances

> They bring Mrs de B, Mrs de V, and Messrs M and R to the treatments They ask these four people to observe what they feel but without paying too close attention to it
>
> Mr M, at the moment a finger was placed in front of his injured knee, thought he felt a sudden warmth where he habitually feels pain
>
> Mrs de V, afflicted with a nervous disorder, was on the verge of falling asleep several times while being magnetized she also felt agitated and uneasy (I, p 21)

These effects are of little importance in comparison with all those the Commissioners saw at my treatments But they are effects, and presuppose a cause In the report they are explained as follows

> One may suspect that Mr M devoted too much attention to observing himself, that Mrs de V was bored, that without a doubt the finger was held too close to the watering eye of Grenet, and that finally Mrs Charpentier thought the Commissioners would be pleased if she said she experienced some effects (I, pp 24-25)

This confident denial of influence is founded on nothing but suspicions and arbitrary assumptions!

In addition, the preconception is here introduced (I, p 27) that these apparent effects may be the product of the imagination The Commissioners pass on to three other experiments performed on three of my patients All three had crises, which the Commissioners claim were the effects of the imagination

A young man was taken to a location in which I had magnetized a tree and he was led successively to four other trees, 24, 27, 36, and 38 feet from the one magnetized At each tree the young man feels some effects, and at the fourth he experiences a crisis I do not accept the conclusion that this case constitutes a proof against magnetism and for the imagination From the fact that the young man experienced a crisis before arriving at the magnetized tree it does not follow that the magnetized tree did not have any effect A plausible reason why the young man experienced a crisis before arriving at the magnetized tree would have occurred to the Commissioners if they had recalled my theory and the effects which they had themselves witnessed on a number of occasions I had already taught them that the procedures which activate the agent, once employed on a given subject, are consummated when it pleases Nature—sometimes sooner, sometimes later I explained that whole days often pass in waiting for this moment If the young man in question experienced a crisis before arriving at the magnetized tree, this can surely be the outcome of a development initiated perhaps in the car in which he came with me, or perhaps in the treatment of preceding days I dare reproach the Commissioners

with a trifle too much haste when I see them pass an absolute judgment on a few unique cases, which at least merited further experimentation before being dismissed as effects of the imagination.

The case of Miss B. is treated even more superficially:

> Magnetized, without her suspecting, through a door covered only with paper screening, she felt nothing and conversed gaily. Asked about her health, she responded freely that she felt very well. The doctor, after half an hour of futile treatment, returned to the room where the girl was and magnetized her, this time with her consent After three minutes she felt uneasy and depressed Finally she experienced a characteristic convulsive crisis. (I, pp. 46–48)

This girl, who regularly attends my treatments, narrated to me later in the presence of a number of my other patients that at the moment when she was magnetized through the paper she had a fit of laughter, as she almost always does when her crises begin She then noted that this laughter was followed by perspiration so abundant that she could not hold on to the linen which had been given her to mend, and was obliged continually to dry her hands As I see it, this case was not a proof against magnetism. Of course, the Commissioners could deny the testimony of this girl on the grounds that she experienced nothing, and only later said what she did to please her doctor Nevertheless her declaration is strikingly plausible She was in a strange house, in the presence of a lady whom she had never seen, to whom she had been introduced to obtain work yet, according to the Report itself, she conversed gaily. This *gaiety* appears to be not dissimilar to that which ordinarily begins her crises

The aspect of this experiment which the Commissioners seem most anxious to underline is that in magnetizing by corresponding poles they contradicted the theory of magnetism and its practice The fact that they nevertheless obtained apparent effects would indicate that these effects were due not to magnetism but to imagination.

My reply is obvious: we magnetize and teach magnetism by opposite poles, which is the most ordinary and most effective procedure. But at no time did I intimate that magnetism by corresponding poles would produce no effects Indeed, I categorically told the Commissioners the opposite.

This is doubtless too much space to devote to experiments badly conceived and badly carried out The Commissioners were always anxious to act, never to listen

The Commissioners do not mention several other experiments which required attention—such as that, for example, performed at the house of Mr. de la Vois on a soldier, Chevalier de St-Louis, whom I did not know By touch I made a pain descend from one side of his head to his stomach and side. Nearing my foot to his I caused him to experience a warmth which I transported to the other foot, besides directing cold and heat throughout his body at will.

At Mr Franklin's I magnetized a woman from the village of Passy by reflection in a mirror. Her back was turned to the mirror and she did not see me. She gave the Commissioners a detailed and precise account of what she had experienced.

Countess de L B was in crisis and completely unconscious Her arm was held aloft in a state of contraction, a posture entirely contrary to nature Addressing myself to the Commissioners present, to Messrs le Roi and de Jussieu among others, I asked them if they wished to have her change position, such that the palm of her hand, which, relative to her body, was turned out, would turn towards her body. They consented to this I did nothing but present my index finger and the thing took place immediately to the great astonishment of these Gentlemen

Here is another experiment which caused them no less surprise and which they likewise forgot in their report The four Commissioners of the Royal Society of Medicine blindfolded one of the patients of my colleague, Mr le Dru, and, without touching the patient, directed the iron successively to various parts of his body The patient felt the majority of the directions and was able to indicate them exactly He experienced a crisis, and tears flowed or stopped as the magnetist wished This scene took place at Mr Mauduit's, in the presence of himself and Messrs Andry, Caille, and de Jussieu Mr Andry, who told me and several patients of the case, was still quite amazed

Forced to acknowledge such marked effects and not wanting to attribute them to magnetism, the Commissioners assigned them three causes, touch, imitation, and imagination

Touch

These gentlemen then delivered a scholarly theoretical lecture on the spleen, the colon, the diaphragm, the ovaries, etc, but experience proves that their entire theory of physical contact is foreign to animal magnetism If these gentlemen had deigned to follow my operations from time to time, they would have convinced themselves that often it is not the patient I touch who feels the effects so much as another whom I do not touch.

The two reports describe the passes involving physical contact as vulgar gestures Nothing could be further from the truth These movements are varied, but always gentle and light, except for particular exceptions which come under the recommended class of Medical rubbings, employed principally in England, Germany, China, and all of India. Finally, the Commissioners apparently forgot that in a discourse delivered to them by my colleague, Mr de la Fisse, it was stated positively that touch had to be gentle and light.

Imitation

If by imitation the Commissioners understand an inevitable human disposition, a constituent principle of human existence—in short the imitation of which, in their own words, "Nature seems to make a law" —then they are speaking of one of the most significant phenomena which can and must occupy the human mind. But it is enough for me to answer that this law of Nature exists everywhere. Far from being dangerous in magnetic treatments (as it sometimes can be elsewhere) it but reinforces the action of the fluid. If they ask me for proof of this, I must reiterate the point they refused to honor, namely: that by studying the course of curative treatments, they would have observed a constant progress tending towards relief and cure. Imitation, they say, communicates and propagates impressions. But if the impressions are salutary, why dismiss the communication as dangerous?

But Nature's law of imitation hardly accounts for the great variety of reactions observed among the patients. The Commissioners themselves mention that some of my patients cough, others spit, others sleep, and yet others are agitated and tormented. Why then does imitation not communicate and propagate to all patients contagions of hiccups, violent coughs, profound lethargy, and so forth? The conclusion that imitation is a true cause of the effects attributed to magnetism is improbable and devoid of proof.

Imagination

What is imagination? The Commissioners refer to it a great deal but they do not define it:

> The imagination functions first of all by its own power; it produces enthusiasm or panic terrors in armies on a day of battle; it is no less active at theatrical representations and in all large assemblies. It also gives birth to revolts, and when animated by fanaticism, it gives rise to the Shakers of Cevennes, etc. (I, pp. 53–54)
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> The imagination is also influenced by circumstance. A close place, warm air, an aura of mystery created by closing the doors and windows of the room where the magnetic treatments take place, darkness and silence, the melancholy spectacle of suffering humanity, a calm interrupted only by yawns, sighs, sobs, complaints, sometimes screams, and by various expressions of pain and boredom, and finally the harmonious sounds of a piano: these are the secondary causes of the convulsions and of what are improperly termed crises. (I, p. 53; II, p. 12)

To make of imagination, which is an attribute of our souls, a principle active in the real diseases which I treat and in the equally real cures

which I perform, the Commissioners are obliged to communicate their ideas and their principles. In metaphysics the imagination is generally viewed as a great conceptualizing activity In physics, if one wishes to define it, the imagination may be said to be the fluid which collects in us and which escapes from us more or less actively, depending on the force of the internal or external resistance it encounters. Under which if either of these two aspects did the Commissioners consider the power which they attribute to the imagination in my treatments?

They put words in my mouth when they attribute to me the statement that the imagination played the greatest part in the effects of animal magnetism (I, p. 60). Everything they quote from me in this regard is a distortion; they were well aware that this remark was but a momentary conjecture on my part, devoid of serious consideration When they framed their report they ignored the principles which I had so painstakingly explained to them. They no longer recalled the discourse in which my colleague, Mr la Fisse, set forth these principles in a most exact and precise manner. The slightest real attention to my words would have made clear that I could not possibly have said both (*a*) that animal magnetism was the influence of a physical fluid on physical bodies and (*b*) that it was the simple action of the imagination.

The Commissioners speak only of *convulsions*, but in fact I have never had more than six or seven examples of this disease at a time in treatments composed of fifty or sixty patients. Among more than five hundred patients I have treated continuously over the last three years I have had no more than twenty who were subject to these convulsions The majority of these patients were affected by convulsions even before coming to my treatments. It would have been easy for the Commissioners to assure themselves of this if they had taken the trouble to achieve accuracy. Mrs de la S, for example, had been subject to violent convulsions for five years before placing herself in my care. Her crises lasted for days at a time Today, and for several months now, they last hardly half an hour and are rarely accompained by violent symptoms The convulsions of Miss B, cited by the Commissioners, have diminished considerably Miss P, also cited in the report, was seriously affected by them for some time but today she has no more crises (I do not say that they will not recur in the latter part of her treatment. Indeed, it is my opinion that they will.) Mr. B, whom I treated two years ago, was subject to extremely violent convulsions. They ceased at the moment of his cure, which the crises themselves had effected.

It suffices to observe the development of these convulsions with some attention to convince oneself that they are true Medical crises, although the Commissioners contend that they are improperly named, that animal magnetism is only the art of exciting pernicious convulsions. In my view I can see no reason to doubt that the crises stem necessarily from an internal morbific cause and that they are the effect of this cause. This

effect can be nothing other than Nature's effort to rid herself of the affliction—which in Medicine is appropriately called a *crisis*. If it were otherwise, the convulsions experienced by patients treated by animal magnetism would have the character of all other convulsions. They would be followed only by anxiety and would produce no salutary evacuation; they would not result in calm and relief.

I have treated two epileptics They never had a convulsive attack at my clinic, though they had them frequently at their own homes. Likewise, several people who experience violent convulsions at home, never have any in treatment.

Is it not reasonable to assume that these effects, sometimes mild, sometimes violent, are a true work of Nature, determined, reinforced, and fortified by some agent? This work of Nature, so managed and prepared that the morbific humour is broken down, displaced, and evacuated, can hardly be called a pernicious convulsion .

Is it the imagination which brings about evacuations by salts, by vomiting, by perspiration, by urine, by expectoration? Is it the imagination which restores sleep and digestion, which dissipates obstructions and scirrhus? Is it the imagination which evacuates abcesses, renews the haemorrhoidal flow and periodic evacuations suppressed for several years? Is it the imagination which dispels the gout, which brings an apoplectic back to life, which forces a well-established dartrous humor to the surface? Is it the imagination which affects sleeping patients? Is it the imagination which affects children at the breast? Is it the imagination which eases in a moment the pains of a cruel burn and cures it within a short time?

Touch, imitation, and imagination do not constitute "the great power the presence of which must be recognized in these continuous effects, which influences the patients and controls them, and of which the magnetist seems to be the depositary" (I, p 7)

I believe I have cast grave doubts upon the alleged proofs against the existence of animal magnetism and those of the pretended danger of its practice

The Commissioners conclude that animal magnetism should be prohibited. The first report advocates the proscription of public treatments only. The second demands that animal magnetism be prohibited as such "because, procedures and effects being everywhere the same, the inconveniences and the dangers everywhere deserve the same treatment" (II, p 39)

Among the hundred and sixty Doctors whom I have instructed, there were twenty-one members of the Faculty of Medicine of Paris. When the first report appeared this company met in a special session and demanded that doctors practicing animal magnetism formally abandon, in writing, not only that practice but even their belief in it. Practical considerations moved seventeen of these gentlemen to make this promise, although privately they admit to me that they still believe in the practice. I never admitted

anyone to instruction whose conviction of the existence of animal magnetism had not been established beforehand by an uninterrupted examination of my treatments. What will these seventeen now do with a patient whom they believe they can help by means of animal magnetism and whom they believe they will hurt by administration of the usual remedies? Will they merely stand speechless? Will they be forced to deceive their conscience?

When, at the meeting of August 20, 1782, I declared to the Faculty of Medicine that I treated the afflicted by animal magnetism, I furnished a list of the names and addresses of thirty patients whom I had already cured by this method. I have treated over five hundred people since then. I will not waver in the least from an opinion which my own reflections and six years of experience have but fully affirmed.

But even if the condemnation of animal magnetism had proved unavoidable, would not it have been necessary to arrive at this judgment cautiously, and on the basis of more than superficial evidence? In my view such an extraordinary course of action must stem from a hidden cause. The learned doctors, consulted with regards to the existence of an agent which appears to change the present system of physics and medicine, invalidating most known remedies, had to defend themselves against the new doctrine. It is not easy to renounce accepted ideas –the principles of one's education, the efforts of one's youth, the reputation one has made growing old.' These sources of resistance seem to me the true enemies of animal magnetism.

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3

Letter from Franz Anton Mesmer to the Royal College of Physicians, London on the Occasion of Presenting a Copy of his MÉMOIRE on his Discoveries to the College

Franz Anton Mesmer

Gentlemen,—

Persuaded that the knowledge and fate of a truth destined to become the essential object of your profession cannot be indifferent to you, I have the honour to lay before you, in the present memoir, a sketch of a doctrine which I term *animal magnetism,* and of the extent of its utility.

You will readily perceive that the new method of treatment that I propose is not blind empiricism or a peculiar secret; but that the possibility and successful practice of it are proved by a theory which is founded in nature.

When Galileo was persecuted for having wished to teach his contemporaries the motion of the earth, his condemnation was not pronounced

Reproduced in Elliotson, John. *The Harveian Oration, 1846.* English Version. London: H. Baillière, 1846. Pp. 68–70.

by the philosophers and astronomers of his day, but by priests, who, filled with veneration for the Scriptures, thought, with at least an appearance of reason, that his assertions were impious and tended to oppose revelation He had no facts to offer to his judges, but only calculations and combinations unintelligible to them The condemnation, however, of this philosopher fixed the character of ignorance and barbarism upon his age.

Will *posterity* believe that, at the end of the eighteenth century, an assembly, appointed to receive useful discoveries, disdained to examine the memoir which I presented to them,—that, instead of paying attention to a subject, the utility of which was shewn by innumerable facts in all parts of France, they entirely neglected it by the advice of a physician interested in depreciating it, and who adopted as the ground-work of his report the fragment of the report of an irregular commission of the ancient *régime,* which had been broken up and destroyed above sixteen years before and the last king of which had forbidden its promulgation as immoral?

After an examination so slight and superficial, instead of a direct answer, which I had a right to expect, they informed the world, in a periodical, that they considered my assertions quackery, and animal magnetism a folly, the practice of which was contrary to morality.

If, Gentlemen, I had come among you to propose an agent upon the nerves, for want of which medicine is often at fault; if I had submitted to you the examination of the nature and application of my doctrine, if I had proved to you by facts, multiplied at pleasure, the reality and efficacy of a new method, not only of curing, but of preventing diseases; if I had been eager to place in your hands all the means afforded by my discoveries and experience, if I had shewn you that this doctrine, which elevates the situation of the physician, must at some future time be established in the bosom of society, not to lead to the practice of an uncertain art, but to the employment of a remedy which will secure to it the title of preserver of health.—if I had come among you with all these facts and all these proofs, to propose to establish before your eyes a practical rivalry between my method of cure and that which has been hitherto employed, you would not have repelled me as an enemy, you would not have overwhelmed me with insult and contempt, you would not have considered the blows given to my reputation and the hindrances opposed to the progress of my opinions as a triumph. You would, I am certain, have behaved more generously; you would have wished the infallible torch of repeated experiment to have enlightened your decision: and your countrymen would have blessed you as their true friend and as depositaries worthy of their confidence.

Mesmer, said one of your newspapers, will never hold up his head again. If such is the destiny of the man, it is not the destiny of the truth, which is in its nature imperishable, and will shine forth sooner or later

in the same or some other country with more brilliancy, and in its triumph will annihilate all its miserable detractors.

Gentlemen, this cause, which I may term the cause of humanity, is undamaged in England, where the discovery has not yet been proclaimed. I place it today in your hands, because I feel assured that the spirit of justice which influences all your actions will secure it from that party spirit which has so outraged it upon the continent, and which you are destined to avenge.

Respectfully yours . . .
Paris, March 28, 1802.

4

Rules of Magnetizing



Joseph Philippe François Deleuze

When a sick person desires you to attempt to cure him by magnetism, and neither the family nor the physician make objection to it, if you feel the desire to second his wishes, and are resolved to continue the treatment so long as it shall be necessary, settle with him the hour of the sittings, make him promise to be exact, not to limit himself to an attempt of a few days, to conform himself to your advice in relation to regimen, and not to speak of the undertaking except to persons who ought naturally to be informed of it.

When you are once agreed, and determined to treat the thing seriously, remove from the patient all persons who would be troublesome; do not keep near you any except necessary witnesses, (one only if it can be so) and request of them not to occupy themselves at all with the processes you employ, nor with the effects that follow, but to unite with you in the intention of doing good to the patient. Arrange things so as not to be too cold nor too warm, so that nothing shall interfere with the freedom of your movements, and take precautions to prevent all interruptions during the sitting

1) Cause your patient to sit down in the easiest position possible, and place yourself before him, on a seat a little more elevated, so that his knees may be between yours, and your feet by the side of his. Demand of him in the first place that he give himself up entirely, that he think of nothing, that he do not trouble himself by examining the effects which he experiences, that he banish all fear, and indulge hope, and that he be not disquieted or discouraged if the action of magnetism produces in him temporary pains.

Selections from Chapters 2 and 3 of J P. F Deleuze, *Practical instructions in animal magnetism: Part I.* French original, 1825. Translated from the Paris edition by Thomas C. Hartshorn with notes by the translator referring to cases in this country. Providence, R.I.: B. Cranston, 1837. Pp. 22–45.

After you have brought yourself to a state of self-collectedness, take his thumbs between your two fingers, so that the inside of your thumbs may touch the inside of his. Remain in this situation five minutes, or until you perceive there is an equal degree of heat between your thumbs and his: that being done, you will withdraw your hands, removing them to the right and left, and waving them so that the interior surface be turned outwards, and raise them to his head; then place them upon his two shoulders, leaving them there about a minute; you will then draw them along the arm to the extremity of the fingers, touching lightly. You will repeat this *pass*[1] five or six times, always turning your hands and sweeping them off a little, before reascending: you will then place your hands upon the head, hold them there a moment, and bring them down before the face, at the distance of one or two inches, as far as the pit of the stomach: there you will let them remain about two minutes, passing the thumb along the pit of the stomach, and the other fingers down the sides. Then descend slowly along the body as far as the knees, or farther; and, if you can conveniently, as far as the ends of the feet. You may repeat the same processes during the greater part of the sitting You may sometimes draw nearer to the patient so as to place your hands behind his shoulders, descending slowly along the spine, thence to the hips, and along the thighs as far as the knees, or to the feet. After the first passes you may dispense with putting your hands upon the head, and make the succeeding passes along the arms beginning at the shoulder: or along the body commencing at the stomach.

When you wish to put an end to the sitting, take care to draw towards the extremity of the hands. and towards the extremity of the feet, prolonging your passes beyond these extremities, and shaking your fingers each time. Finally, make several passes transversely before the face, and also before the breast, at the distance of three or four inches: these passes are made by presenting the two hands together and briskly drawing them from each other, as if to carry off the super-abundance of fluid with which the patient may be charged. You see that it is essential to magnetize, always descending from the head to the extremities, and never mounting from the extremities to the head. It is on this account that we turn the hands obliquely when they are raised again from the feet to the head. The descending passes are magnetic, that is, they are accompanied with the intention of magnetizing. The ascending movements are not. Many magnetizers shake their fingers slightly after each pass. This method, which is never injurious, is in certain cases advantageous, and for this reason it is good to get in the habit of doing it.

Although you may have at the close of the sitting taken care to spread

[1] I employ here the word pass, which is common to all magnetizers: it signifies all the movements made by the hand in *passing* over the body, whether by slightly touching, or at a distance.

the fluid over all the surface of the body, it is proper, in finishing, to make several passes along the legs from the knees to the end of the feet. . . .

This manner of magnetizing by longitudinal passes, directing the fluid from the head to the extremities, without fixing upon any part in preference to others, is called *magnetizing by the long pass.* . . . It is more or less proper in all cases, and it is requisite to employ it in the first sitting, when there is no special reason for using any other. The fluid is thus distributed into all the organs, and it accumulates naturally in those which have need of it. Besides the passes made at a short distance, others are made, just before finishing, at the distance of two or three feet. They generally produce a calm, refreshing and pleasurable sensation

There is one more process by which it is very advantageous to terminate the sitting. It consists in placing one's self by the side of the patient, as he stands up, and, at the distance of a foot, making with both hands, one before the body and the other behind, seven or eight passes, commencing above the head and descending to the floor, along which the hands are spread apart This process frees the head, re-establishes the equilibrium and imparts strength

When the magnetizer acts upon the patient, they are said *to be in communication,* (rapport) That is to say, we mean by the word *communication,* a peculiar and induced condition, which causes the magnetizer to exert an influence upon the patient, there being between them a communication of the vital principle. . . .

Ordinarily magnetism acts as well and even better in the interior of the body, at the distance of one or two inches, than by the touch. It is enough at the commencement of the sitting to take the thumbs a moment. Sometimes it is necessary to magnetize at the distance of several feet Magnetism at a distance is more soothing, and some nervous persons cannot bear any other. . . .

It is by the ends of the fingers, and especially by the thumbs, that the fluid escapes with the most activity. For this reason it is, we take the thumbs of the patient in the first place, and hold them whenever we are at rest. . .

The processes I have now indicated, are the most regular and advantageous for magnetism by the long pass, but it is far from being always proper, or even possible to employ them. When a man magnetizes a woman, even if it were his sister, it might not be proper to place himself before her in the manner described; and also when a patient is obliged to keep his bed, it would be impossible. . . .

Let us now consider the circumstances which point out particular processes.

When any one has a local pain, it is natural, after establishing a communication, to carry the magnetic action to the suffering part. It is not by passing the hands over the arms that we undertake to cure a sciatic;

it is not by putting the hand upon the stomach that we can dissipate a pain in the knee. Here are some principles to guide us.

The magnetic fluid, when motion is given to it, draws along with it the blood, the humors and the cause of the complaint. For example, if . . . one has a pain in the shoulder, and the magnetizer makes passes from the shoulder to the end of the fingers, the pain will descend with the hand: it stops sometimes at the elbow, or at the wrist, and goes off by the hands, in which a slight perspiration is perceived. . . . Magnetism seems to chase away and bear off with it what disturbs the equilibrium, and its action ceases when the equilibrium is restored. It is useless to search out the causes of these facts, it is sufficient that experience has established them, for us to conduct ourselves accordingly, when we have no reason to do otherwise

You may be assured that the motions you make externally, will operate sympathetically in the interior of the patient's body, wherever you have sent the fluid into it . . .

I think it important to combat an opinion which appears to me entirely erroneous, although it is maintained by men well versed in the knowledge of magnetism; viz that the processes are in themselves *indifferent*; that they serve only to fix the attention, and that the will alone does all. . . .

The processes *are* nothing if they are not in unison with a determined intention We may even say they are not the *cause* of the magnetic action; but it is indisputable that they are necessary for directing and concentrating and that they ought to be varied according to the end one has in view. . . . Each one might modify the processes according to his own views and practice, but not that he could omit them, or employ them in a manner contrary to the general rules For example, various magnetizers act equally well by passes, more gentle or more rapid; by contact, or at a distance; by holding the hands to the same place, or by establishing currents. But it is absurd to believe one can cure chilblains on the feet, by placing the hands on the breast

Persons who are not in the habit of magnetizing, think they ought to exert a great deal of force For which purpose, they contract their muscles, and make efforts of attention and will This method is . . often injurious. When the will is calm and constant, and the attention sustained by the interest we take in the patient, the most salutary effects ensue, without our giving ourselves the least pain . . . A person ought not to fatigue himself by magnetic processes: he will experience fatigue enough from the loss of the vital fluid . . .

It frequently happens that magnetism gradually re-establishes the harmony of the system without producing any sensation, and its influence is perceived only in the restoration of health. In that case you ought to continue zealously to follow the processes I have pointed out, without

troubling yourself about the manner in which the magnetism acts, and without seeking for any apparent effect.

The happiest thing that can happen to him who for the first time attempts to magnetize, is, to encounter a subject who is not insensible to the action of magnetism, and who nevertheless feels only slight and gradual effects from it. If the first patient whose case is undertaken is absolutely insensible to the action, one is apt to imagine he has not conducted the process aright, or else he doubts his own power, and in proportion as one doubts it, it really becomes enfeebled. If one were at first to see wonderful effects produced, he would be apt to yield to curiosity and enthusiasm; and the attention would be drawn from the essential object, which is a cure. To magnetize well, it is necessary to be very attentive, to be surprised at nothing, and to observe the effects produced, only the better to direct the action of magnetism.

The instruction which I here give, has for its principal object, to prevent false ideas and exaggerated opinions, to which persons are liable to be exposed, for want of experience. They who adopt my principles will not lose confidence in their powers because they have not at first succeeded; they will not be precipitated into exaggeration because they have seen surprising things. They will know how to modify both the influence of their will, and the processes which they first employed.

There are patients in whom the influence of magnetism is displayed in two or three minutes; others, who do not feel it for a long time. There are some in whom the effects are constantly increasing; others, who experience at the first time all that they will experience in the course of a long treatment. . . .

The effects by which magnetism manifests its action are greatly varied. . . . They change sometimes, in proportion to the change wrought in the malady.

I will now describe the effects which are most commonly exhibited.

The magnetized person perceives a heat escaping from the ends of your fingers, when you pass them at a little distance before the face, although your hands appear cold to him, if you touch him. He feels this heat through his clothes, in some parts, or in all parts of his body before which your hands pass. He often compares it to water moderately warm, flowing over him, and this sensation precedes your hand. His legs become numb, especially if you do not carry your hands as low as his feet; and this numbness ceases when, towards the close, you make passes along the legs to the toes, or below them. Sometimes instead of communicating heat, you communicate cold; sometimes also you produce heat upon one part of the body, and cold upon another. There is often induced a general warmth, and a perspiration more or less considerable. Pain is felt in the parts where the disease is seated. These pains change place, and descend.

Magnetism causes the eyes to be closed They are shut in such a manner that the patient cannot open them; he feels a calm, a sensation of tranquil enjoyment; he grows drowsy, he sleeps; he wakes when spoken to, or else he wakes of himself at the end of a certain time, and finds himself refreshed Sometimes he enters into somnambulism, in which state he hears the magnetizer and answers him without awaking The state of somnambulism . . does not take place except in a small numb r of cases . . .

Here I ought to observe, that the magnetic sleep is of itself essentially restorative During this sleep, nature unassisted works a cure, and it is often sufficient to re-establish the equilibrium, and cure nervous complaints.

When you have ended the sitting, you will agree with the patient upon the hour when the next one shall take place, and you will endeavor to be exact It is advantageous to magnetize every day at the same hour, and above all not to change the hour agreed upon for many days in succession He who undertakes a treatment, ought in general to live temperately, avoiding all excesses, and to guard as much as possible against all things which tend to interrupt or disturb the exercise of his physical and moral powers

5

History of Animal Magnetism—the Academic Period

Alfred Binet and Charles Samson Féré

In 1820 it might have been supposed that animal magnetism was about to enter upon a scientific era Dr. Bertrand, a former pupil of the Polytechnic School, had just brought the subject before the public in a course of lectures General Noizet, about the same time, drew up a paper for the Royal Academy of Berlin on somnambulism and animal magnetism. Experiments were performed in the hospitals, directed at the Hôtel-Dieu by Du Potet, pupil of Husson, and at the Salpêtrière by Georget and Rostan The experiments made on hysterical patients were not such as to modify the scepticism of the scientific world, and it was thought probable that the experimenters had been deceived by their patients Indeed Pétronille, one of Georget's well-known somnambulists, afterwards confessed that she had imposed on the observers But Richer justly observes that such confidences are the common boasts of hysterical patients, and that those who believe them incur the same reproach of credulity as their opponents are charged with.

The general council of the hospitals put an end to these operations, on the ground that the patients should not be subjected to such experiment, but on all sides the need of some definite proof was felt

In 1825 Foissac induced the Academy of Medicine, which had succeeded to the Royal Society of Medicine to take part in the controversy. He drew up a paper, in which he undertook to show that simple contact enabled his somnambulists to diagnose their diseases, with an intuition *worthy of the genius of Hippocrates.* Although such language did not seem

In *Animal magnetism* French original, 1887 Engl. translation N Y D Appleton and Co., 1888, Chapter 2, Pp 33–53

to be adapted to convince the Academy, its members nominated a commission charged to decide whether it was expedient to undertake a fresh examination into the question of animal magnetism. The report presented by Husson was in favour of such an examination, and the Academy, by a majority of thirty-five votes against twenty-five, nominated a commission of inquiry, consisting of Bourdois, Double, Fouquier, Itard, Guéneau de Mussy, Guersant, Leroux, Magendie, Marc, Thillaye, and Husson. Magendie and Double, finding that the experiments were not very carefully performed, took no part in the labours of the commission. At the end of five years' patient research, in June, 1831, Husson presented a report in which the existence of animal magnetism was affirmed. "The results are negative or insufficient in the majority of cases," the report declares; "in others they are produced by weariness, monotony, or by the imagination. It appears, however, that some results depend solely on magnetism, and cannot be produced without it. These are physiological phenomena, and well established therapeutically." The importance of this work decides us to reproduce its principal conclusions *in extenso*

> The contact of the thumbs and hands, friction, or the employment of certain gestures within a short distance of the body, which are called passes, are the means employed to place the patient *en rapport*, or, in other words, to transmit the action of the magnetizer to his subject.
>
> The time necessary for transmitting and effecting this magnetic action varies from half an hour to one minute.
>
> When once a person has been thrown into the magnetic sleep, it is not always necessary to have recourse to contact and passes in order to magnetize him afresh. A glance from the magnetizer, or his will alone, may have the same influence.
>
> The effects produced by magnetism are extremely varied; it agitates some people and calms others; it generally causes a momentary quickening of the respiration and of the circulation: this is followed by fibrillary, convulsive movements like those produced by electric shocks, by a more or less profound torpor; by stupor and somnolence; and, in a few instances, by what magnetizers term somnambulism.
>
> The perceptions and faculties of individuals who are thrown by magnetism into a state of somnambulism are modified in various ways.
>
> Some, amid the noise of general conversation, only hear the voice of their magnetizer; many make a direct reply to the questions which he or the persons with whom they are placed *en rapport* address to them; others converse with all those who surround them; in few instances are they aware of what is passing. They are generally completely unconscious of any sudden external noise made close to their ears, such as the striking of copper vessels, the fall of a piece of furniture, etc.
>
> The eyes are closed, and the lids yield with difficulty to any effort made with the hand to open them. This operation causes pain, and the pupil of the eye is then seen to be contracted and turned upwards, or sometimes towards the base of the orbit.
>
> Sometimes the sense of smell is altogether absent, and they may be made to breathe nitric acid or ammonia without being incommoded, or

even without their becoming aware of it But this is not always the case, and some subjects retain the sense of smell

Most of the somnambulists whom we have observed were completely insensible The feet might be tickled, the nostrils and the corner of the eyelid might be touched with a feather, the skin might be pinched until it was discoloured, pins might suddenly be driven to some depth under the nails, and the subjects would betray no sign of pain, nor even a consciousness of the fact Finally a somnambulist has been rendered insensible to one of the most painful surgical operations, and neither the countenance, the pulse, nor the respiration betrayed the slightest emotion

We have only observed one individual who was thrown into the state of somnambulism when magnetized for the first time Sometimes somnambulism only occurs after the eighth or tenth *seance*

We have constantly observed that natural sleep, which is the repose of the organs of the senses, of the intellectual faculties, and of voluntary movements, precedes and terminates the state of somnambulism

The magnetized subjects whom we have observed under somnambulism retain the faculties of the waking state The memory even appears to be more retentive and of wider range, since they recollect all that occurred on each previous occasion when they were under somnambulism

We have observed two somnambulists who were able, with closed eyes, to distinguish the objects placed before them, who could declare, without touching them the suit and value of playing cards, who could read words traced with the hand or some lines from a book opened at random This phenomenon has even occurred when the fingers are firmly pressed upon the closed eyelids [1]

[1] "On January 12 there was a meeting of the commission at the house of M Foissac This physician announced that he should put Paul to sleep, that when he was in this state of somnambulism a finger would be applied to each closed eyelid and that in spite of this he would distinguish the colour of cards he would read the title of a book or some words or lines indicated at random in the book itself After the magnetic passes had been made for two minutes Paul was thrown into sleep The eyelids were kept constantly closed in turn by Fouquier Itard Marc and the reporter, and a new pack of cards was presented to him from which the royal stamp was freshly removed When these were shuffled together Paul named them successively without effort the king of spades the ace of clubs the queen of spades the nine of clubs, the seven the queen and the eight of diamonds

"When the eyelids were kept closed by Segalas, a volume with which the reporter was provided was presented to him He read from the title-page, *Histoire de France* was unable to read the two intermediate lines and could read only the name of *Anquetil* on the fifth line where it is preceded by the preposition *par* The book was then opened at page 88, and he read the first line *'le nombre de ses* ' He missed the word *troupes,* and went on, *'Au moment où on le croyait le plus occupé des plaisirs du carnaval'* He likewise read the running title *Louis* but was unable to read the Roman figures which followed it A paper was presented him on which were written the words *agglutination* and *magnétisme animal* He spelled the first word, and pronounced the two others Finally, the report of this *séance* was presented to him, he read the date with some distinctness, and some of the words which were more legibly written than the rest In all these experiments the fingers were applied to the whole surface of each eye by pressing the upper on the lower lid from above in a downward direction and we observed that there was a constant rotatory movement of the eyeball as if it were directed towards the object presented to the vision"—*Text of the Report*

In two somnambulists we observed the power of foreseeing the more or less remote or complicated acts of the organism. One of them announced, several days, and even months, in advance, the day, hour, and minute on which an epileptic attack would occur; the other indicated the epoch of his cure. Their previsions were verified with remarkable accuracy. These appear only to apply to the acts and lesions of their own organisms.

We only observed one somnambulist who indicated the symptoms of the diseases of three persons with whom he was placed *en apport*, although we inquired into a considerable number of cases.[2]

Some of the magnetized patients experienced no benefit. Others derived more or less relief from the treatment; in one case habitual suffering was suspended, in another strength returned, in a third epileptic attacks were averted for several months, and in a fourth serious paralysis of long standing was completely cured

Considered as the agent of physiological phenomena, or as a therapeutic expedient, magnetism must take its place in the scheme of medical science, and consequently it should be practised or superintended by physicians only, which is the rule in northern countries.

The commission has had no opportunity of verifying the other faculties which are said by magnetizers to be possessed by somnambulists. But the facts collected and now set down, are of sufficient importance to justify the belief that the Academy ought to encourage researches into magnetism, since it is an interesting branch of psychology and of natural history.

(Signed) Bourdois de la Motte, Fouquier, Guéneau de Mussy, Guersant, Itard, J Leroux, Marc, Thillaye, Husson (reporter).

Such was the celebrated report, of which the magnetizers made so much that the Academy did not venture to print it

It must be admitted that the commissioners did not pursue in their researches a rigorously scientific method. Since they were chiefly desirous

[2] "M Marc a member of the commission, consented to undergo examination by a somnambulist and Mlle Céline was requested to consider attentively the state of our colleague's health She applied her hand to his forehead and to the region of the heart, and at the end of three minutes she said that there was a determination of blood to the head and that on its left side M Marc was now suffering from pain that he was often oppressed, especially after eating, that he was subject to a hacking cough, that the lower part of the chest was congested with [illegible]d, that there was obstruction to the passage of food that there was a contraction in the region of the ensiform appendix, and that in order to effect a cure M Marc should be frequently bled, that hemlock plasters should be applied, that he should be rubbed with laudanum on the lower part of the chest that he should drink lemonade prepared with gum Arabic, that he should eat little and often, and not go out walking immediately after meals.

'We were anxious to hear whether M Marc's experience agreed with the somnambulist's assertions He said that he really suffered from oppression after eating, that he was subject to a cough, and had pain on the right side of the head, but that he was not conscious of any uneasiness in the digestive canal.

"We were struck by the analogy between M Marc's sensations and the assertions of the somnambulist: we noted it carefully, and await a future opportunity of confirming the existence of this singular faculty."—*Text of Report.*

to prove the existence or non-existence of animal magnetism, they applied themselves almost exclusively to the study of extraordinary facts. They thought that if the results of a given experiment exceeded the limits of the possible, animal magnetism would thereby be proved. In this way the question was wrongly stated, since it was possible that magnetism might be at once a natural fact, and a fact which agreed with known physiological laws. The commissioners did not understand this elementary truth. Impelled by curiosity with respect to the marvellous and the supernatural, they directed their attention to those phenomena which were the most disputed and the most open to dispute, such as the transposition of the senses, the power of reading with bandaged eyes or vision by means of the internal organs, by the epigastrium or the occiput, together with the diagnosis of diseases and an acquaintance with their remedies.

It appears that on all these points the conduct of the inquiry was unsatisfactory, and that the commissioners neglected to take any sufficient precautions. Some of the experiments were really futile. The report states that a somnambulist named Petit, whose eyes were so firmly closed that the eyelashes were interlaced, and who was constantly watched by commissioners who "held the light," was able to read what was presented to him, and played several games of piquet with great spirit. It does not appear that any precautions were taken to prevent this individual from reading through his eyelashes. The commissioners were content to watch his eyes, and it did not occur to them that there is nothing more easy than to read with the eyes apparently closed. At another *séance,* Paul, a young law-student, over whose eyes a commissioner placed his hand, displayed a marvellous clairvoyance; they divided the cards in a pack and he could read almost fluently. The reporter observed, however, that the eyeball was constantly rolling, and appeared to be directed towards the object presented to the vision. When we add that the young man read slowly, before a large circle, and that he made mistakes, we shall agree with Ségalas a member of the Academy, who had himself on one occasion kept the eyes of the subject closed, that it was probably possible to move the eyelids, to catch a glimpse of some of the words, and to guess the rest. At any rate, more careful experiments were needed before admitting that it is possible to see and read with closed eyes. We do not speak of internal vision, of the prevision of crises, and the instinctive knowledge of remedies, since the experiments were all of the same stamp.

Together with these unsatisfactory statements, we find some good descriptions of somnambulism. The commissioners observed that when the subjects were put to sleep they presented "an acceleration of the pulse and of the breathing, fibrillary movements like those produced by electric shocks, stupor, and somnolence. . . . The subject sometimes made a direct reply to the question addressed to him, but in general he was quite unconscious of any sudden noise made at his ear. . . . The eyes were closed, and on

raising the eyelid, the pupil was seen to be contracted and turned upwards. . . . The surface of the body was generally insensible to pain; . . . the skin might be pinched until it was discoloured, pins might be driven under the nails without disturbing the subject's impassibility." All this description is excellent: it is unfortunate that the commissioners, who observed the natural phenomenon with such accuracy, were unable to detach it from the phantasmagoria by which it was surrounded

Finally, the commissioners were mistaken in two points. First, in confounding the question of animal magnetism with the extraordinary and supernatural phenomena described by the magnetizers, secondly, in not bringing to a study of these phenomena, which required the utmost caution, the rigorous care which we have a right to demand from an academical commission

The Academy, which did not include among its members many partisans of magnetism, was somewhat astonished by Husson's report It was read in the meetings held on the 21st and 28th of June, 1831 But there was no public debate, nor was the question put to the vote The report was not even printed, only committed to writing The Academy shrank from deciding such burning questions

In 1837 the brooding discussion burst forth, on account of the painless extraction of a tooth during the magnetic sleep, which was related by M Oudet

Berna, a young magnetizer implored the attention of the Academy of Medicine, and a fresh commission was nominated It consisted of Roux, Bouillaud, Cloquet, Emery, Pelletan, Caventou, Cornac, Oudet, and Dubois, the last-named acting as reporter The Academy was again drawn in the wrong direction Berna urged them to examine extraordinary phenomena, such as vision without using the eyes, and the communication of the magnetizer's thoughts to his subject, phenomena which he boasted of producing in two of his somnambulist subjects

The results of this inquiry, which was conducted with greater care than that of the previous commission, were negative We give the conclusions of this report, as we have already given those of Husson's report

1ST CONCLUSION

> Dubois, in terminating his report, states that it appears from all the facts and incidents witnessed by us that, in the first place, no special proof has been given to us as to the existence of a special state, called the state of magnetic somnambulism, that it is only by way of assertion, and not by way of demonstration, that the magnetizer has affirmed at each *séance*, before undertaking any experiments, that his subjects were in a state of somnambulism
>
> It is true that, according to the magnetizer's programme, we might be assured that the subject, before he was thrown into a state of somnambulism, was in perfect possession of all his senses, that for this purpose we were

to prick him, and that he would then be put to sleep in the presence of the commissioners But it appeared from our experiments at the *séance* of the 3rd of March, and before any magnetizing process had taken place, that the subject of experiment was as insensible to pin-pricks before the supposed sleep as he was when it had occurred, that his countenance and replies varied little before and after the so-called magnetic sleep. Your commissioners are unable to decide whether this was from inadvertence, from a natural or acquired insensibility to pain, or from an unreasonable desire to attract attention. It is true that we were told on each occasion that the subjects were asleep, but this was purely a matter of assertion.

If, however, experiments made upon subjects presumed to be in a state of somnambulism should ultimately prove the existence of such a state, the conclusions we are about to draw from their experiments will show whether such proofs have any value or not.

2ND CONCLUSION

According to the terms of the programme, the second experiment is intended to establish that the subjects are insensible to pain.

We must, however, recall the restrictions imposed on your commissioners. The face was not to be subjected to such experiments, nor yet those parts of the body which are usually covered, so that they could only be performed on the hands and the neck. These parts were not to be pinched nor twitched, nor placed in contact with any burning substance, nor exposed to any high temperature, the only thing permitted was to insert the points of needles to the depth of half a line, and at the same time the face was half covered by a bandage which did not allow us to observe the expression of the countenance, when the attempt was made to inflict pain. When we recall all these restrictions, we deduce from them the following facts:—(1) that the sensations of pain we were permitted to excite were extremely slight and of limited extent; (2) that they could only be excited on a small portion of the body, which was perhaps accustomed, to receive such impressions, (3) that since these impressions were always of the same kind, they were of the nature of *tattooing*, (4) that the face, and particularly the eyes, in which the expression of pain is most apparent, were concealed from the commissioners, (5) that under these circumstances, impassibility, however absolute and complete, could not be accepted by us as a conclusive proof that the subject in question was devoid of sensibility.

3RD CONCLUSION

The magnetizer undertook to prove to the commissioners that, by the mere exercise of the will, he had the power of making his subject either locally or generally sensible to pain, which he terms the *restitution* of sensibility.

As, however, he had been unable to give us any experimental proof that he had taken away and destroyed this girl's sensibility, this experiment was correlative with the other, and it was consequently impossible to prove such a restitution; moreover, the facts observed by us showed that all the attempts made in this direction had completely failed. You must remember, gentlemen, that the only verification consisted in the somnambulist's assertions. When, for instance, she assured the commissioners that she was unable to move her left leg, this was no proof that the limb was magnetically

paralyzed; even in this case her words were not in accordance with her magnetizer's pretensions, so that we only obtain assertions without proof, opposed to other assertions, equally without proof.

4TH CONCLUSION

What we have just said with reference to the abolition and restitution of sensibility, is applicable in every respect to the so-called abolition and restitution of the power of movement, of which your commissioners did not obtain the slightest proof.

5TH CONCLUSION

One paragraph of the programme is entitled, 'Obedience to the mental order to cease, in the midst of a conversation, to reply verbally and by signs to a given person.'

In the *séance* of March 5, the magnetizer attempted to prove to the commissioners that the power of his will went so far as to produce this effect: but it resulted from the facts which occurred during this *séance* that, on the contrary, the somnambulist was still unable to hear when the experimenter no longer wished to prevent her from hearing, and that she appeared to possess the power of hearing when he distinctly desired her to hear nothing. So that, according to the somnambulist's assertions, the faculty of hearing, or of ceasing to hear, was in this instance in absolute revolt against the will of the magnetizer.

But well-considered facts lead the commissioners to the conclusion that there was neither a revolt nor a submission of the will; only an absolute independence.

6TH CONCLUSION

Transposition of the sense of sight.—The magnetizer, as you are aware, complied with the commissioners' request in turning from the study of the abolition and restitution of sensibility and the power of movement, in order to consider more important facts; namely, the facts of vision without the aid of the eyes. All the incidents in connection with these facts have been shown to you; they occurred in the *séance* of April 3, 1837.

Berna undertook to show the commissioners that a woman, influenced by his magnetic manipulations, could decipher words, distinguish playing cards, and follow the hands of a watch, not by means of her eyes, but by her occiput—a fact which would imply either the transposition or the inutility of the organs of sight during the magnetic state. These experiments were made, and, as you are aware, were a complete failure.

All which the somnambulist knew, all which she was able to infer from what was said in her immediate vicinity, all which she could naturally surmise, she uttered with bandaged eyes; from which we at once concluded that she was not without ingenuity. Thus, when the magnetizer invited one of the commissioners to write a word on a card, and to present it to the woman's occiput, she said that she saw a card, and even the writing on the card. If she was asked how many persons were present, she could, since she had seen them enter, approximately declare their number. If she was asked whether she saw a commissioner sitting near her, engaged in writing with a scratching pen, she raised her head, tried to see under,

the bandage, and said that this gentleman held something white in his hand. When asked whether she saw the mouth of the same individual, who had left off writing and placed himself behind her, she said that he had something white in his mouth. Hence we concluded that this somnambulist, more experienced and adroit than the former one, was able to make more plausible surmises.

But with respect to facts really adapted to establish vision by means of the occiput, decisive, absolute, and peremptory facts, they were not only altogether absent, but those which we observed were of a nature to give rise to strange suspicions as to this woman's honesty, as we shall presently observe.

7TH CONCLUSION CLAIRVOYANCE

When the magnetizer despaired of proving to the commissioners the transposition of the sense of sight, the nullity and superfluity of the eyes during the magnetic state, he sought to take refuge in the fact of clairvoyance, or of vision through opaque bodies.

You are acquainted with the experiments made on this subject. The main conclusion deduced from these facts was that a man, placed before a woman in a given attitude, is unable to give her the power of distinguishing the objects presented to her when her eyes are bandaged.

Here your commissioners were occupied with a more serious reflection. Admitting for a moment an hypothesis which is very convenient for magnetizers, that in many cases somnambulists lose all lucidity, and are as unable as ordinary mortals to see by means of the occiput, of the stomach, or through a bandage, what are we to conclude with respect to the woman who gave minute description of objects quite different from those presented to her? We are at a loss what to think of a somnambulist who described the knave of clubs on a blank card, who transformed the ticket of an academician into a gold watch with a white dial-plate inscribed with black figures, and who, if she had been pressed, would perhaps have gone on to tell us the hour marked by this watch. . . .

If, gentlemen, you now ask what is the ultimate and general conclusion to be inferred from all these experiments, made in our presence, we declare that M. Berna undoubtedly deceived himself when, on February 12 of this year, he wrote to the Royal Academy of Medicine that he could boast of affording us the personal experience of which we were in need (these are his words); when he offered to show to your delegates *conclusive* facts; when he affirmed that these facts were of a nature to throw light upon physiology and upon therapeutics. You have now been acquainted with these facts; you agree with us that they are by no means conclusive as to the doctrine of animal magnetism, and that they have nothing in common either with physiology or with therapeutics.

We do not attempt to decide whether the more numerous and varied facts supplied by other magnetizers would lead to a different conclusion, but it is certain that if other magnetizers exist, they do not openly appear, and they have not ventured to challenge the sanction or reprobation of the Academy.

(Signed) M. M. Roux (President), Bouillaud, H. Cloquet, Émery, Pelletier, Caventou, Cornat, Oudet, Dubois (Reporter).

Paris, July 17, 1837.

When this report, taking such a decided part against animal magnetism, was read, Husson felt himself to be directly attacked, and replied. The Academy, however, accepted the conclusions of the report by an immense majority. In our opinion this report did not prove much, since general conclusions could not be drawn from the negative experiments performed on only two somnambulists.

In order to settle the question of animal magnetism, the younger Burdin, a member of the Academy, proposed to award from his private fortune a prize of 3,000 francs to any person who could read a given writing without the aid of his eyes, and in the dark. The Academy accepted the proposal In this way the field of experiment was restricted, and it seemed that by limiting the point at issue, it was rendered more decisive. This was a defiance hurled by the Academy at the magnetizers, and at the first glance it might appear that Burdin went straight to the heart of the question He, speaking for the Academy, seemed to say, "If there is a single somnambulist capable of reading without using his eyes, we will admit the existence of animal magnetism, and go into the question. If no somnambulist can stand the test, animal magnetism has no existence." But as Richer has observed, the dilemma is false Somnambulists might easily be admitted to be incapable of reading without using their eyes, and yet be genuine somnambulists In fact, the Academy demanded that a miracle should be wrought before they would believe in animal magnetism.

At this time Pigeaire, a Montpellier doctor, had a daughter, ten or eleven years of age, who, in a state of somnambulism, did many wonderful things, and especially could read writing when her eyes were covered by a bandage of black silk This was attested by Lordat, the Professor of Physiology at Montpellier Pigeaire brought his daughter to Paris, in hopes of gaining the Burdin prize He began with giving private *séances*, which were completely successful, and, indeed, the private *séance* generally succeeds A very favourable report, signed by Bousquet, Orfila, Ribes, Réveillé-Parise, etc , is still extant But the scene changed when it was necessary to appear before the commission nominated by the Academy. The commissioners suspected that the bandage used by Pigeaire did not serve as a complete obstacle to the normal vision In fact there is nothing apparently so simple, and in reality so difficult, as to find a bandage which is absolutely opaque; any one may see perfectly through an extremely minute hole, such as may, for instance, be perforated in a card, and especially if there are more holes than one, placed at intervals of one or two millimetres from each other If our readers wish for further information on this interesting question we must refer them to Déchambre's article on Mesmerism (*Dictionnaire encyclopédique des Sciences médicales*).[1] Déchambre took

[1] Gerdy's paper on the same subject may also be read with interest *Histoire académique du magnétisme animal, par Burdin jeune et Dubois d'Amiens*, p. 605.

the pains to try for himself the arrangements made by magnetizers for covering the eyes of their somnambulists and he was satisfied that none of these arrangements, although apparently very complex, would after a while prevent them from reading the writing placed under their eyes. We may add that errors become more probable from the excessive keenness of sight common in somnambulists, from the time which elapses before the reading begins, and from the contortions by which the subject tries to displace or loosen the bandage. The Academicians were, therefore, justified in rejecting the bandage used by Pigeaire. They suggested a mask or headpiece of black silk, very light and stretched on two iron wires, so that it might be held at the distance of six inches from the girl's face, so as not to interfere with her breathing, nor with her freedom of action. Pigeaire, on his side, objected to this, and they were unable to come to an agreement, in spite of the concessions made by the commissioners, so that the experiments did not take place. In fact, Pigeaire's stipulations would, as it was said at the time, have degraded the experiment into a mere game of blind-man's-buff.

Pigeaire was succeeded by another magnetizer, Teste, who presented himself before the Academy: he boasted of the possession of a somnambulist who could read writing which was enclosed in a box. This experiment was easily performed, and the magnitizer and the commissioners soon agreed upon the conditions. But the failure was complete, since the subject was unable to divine a single word of the writing.

The Burdin prize was not awarded.

In conclusion, Double proposed that the Academy should henceforward refuse to pay any attention to the proposals of magnetizers, and that animal magnetism should be treated as the Academy of Sciences treats the propositions which refer to perpetual motion, or to the squaring of the circle.

Such was the result of so many efforts, of such patient research, of so many discussions and reports: an absolute and complete negation of the existence of animal magnetism.

This failure of the long labours of the Academy of Medicine was, as we have already said, primarily the fault of the magnetizers. Instead of contenting themselves with the study of the simplest and most ordinary phenomena, they were bent on establishing the existence of complex psychical phenomena, such as vision by means of the occiput, or an acquaintance with future events. The Academy was also mistaken in being seduced by them into this research into the marvellous. It may be said that at the outset of the Academic history of animal magnetism, the problem was wrongly stated. It seems to us that the Academy ought to have clearly stated a question which the magnetizers were allowed to obscure; it should have been seen that among the phenomena proclaimed by the magnetizers, there might be some which were connected with known physical laws, and which might become the object of serious and fruitful study.

At any rate, the Academy ought not to have accepted Double's trenchant proposition, declaring that the question as to animal magnetism was definitively closed, as if no new facts might subsequently arise to compel the Academy to reverse its summary judgment. These new facts consist, as we are aware, in *hypnotism,* formerly regarded as an illusion, and now accepted as a truth of which no one can doubt the reality.

In fact, the history of animal magnetism is of all histories the most instructive and philosophic. we must be indeed incorrigible if it does not disgust us with *à priori* negations

It was a matter of course that after the Academy had pronounced its sentence, somnambulists continued to see through opaque bodies, to predict future events, and to prescribe remedies, just as if the Academy had not spoken at all. . . .

6

The Influence of the Mind on the Body



Charles Radclyffe Hall

When Lafontaine was in Manchester, I allowed him to attempt to mesmerise me. Like others, I was placed in a low, easy chair, my magnetiser sitting before me on a high stool, with his back towards a large chandelier, the glare from which was thus thrown directly on my face. Fixing an intent look on my eyes, which I was not to move, Lafontaine placed his thumbs against mine, his fingers resting gently on the backs of my hands, and his knees and feet being in contact with my own. At first, I gave myself up entirely in mind and body to Lafontaine, obeyed his directions implicitly, and desired to do everything to favour his success. After a time, the constrained position in which I sat began to fatigue me; the constant tickling of hands and knees made those parts tingle; sight became disordered, objects appearing too large, indistinct, or ceasing to be visible; my eyes felt dry and tight, and I had a strong inclination to relieve them by winking or closing the eyelids. My head became rather mazy, and I could not concentrate my thoughts as at first. I felt that I should, in some measure, lose consciousness if this continued. Having expected all this, and predetermined at first to give way, and afterwards to try whether, by an effort of will, I could throw off the strange feelings, I abstracted my attention from what was going on, and at the same time I relieved my eyes, not by closing them, but by altering the axis of vision. Lafontaine now released my thumbs, and made a quivering motion with his fingers before my eyes, following their axis, however I might vary it. But as I could move my eyeballs quicker than he his fingers, he did not succeed in again riveting my attention. Meanwhile I rubbed my thumbs

Edited and rearranged by R E Shor, from C R Hall. *Mesmerism: Its rise, progress, and mysteries.* Originally in *Lancet*, 1845, 1, in serial form beginning pp. 112–118. First American Edition New York: Burgess, Stringer, and Co., 1845. Selections are from pp. 120–121, 146–166.

against my fingers, and my knees against each other, and thus destroyed the peculiar tickling sensations there. Presently, Lafontaine desisted and pointing to my eyes with a shrug of disapprobation, ejaculated, "Les yeux!" At the solicitation of some medical friends, he made a second attempt in a few minutes, but with similar result.

Had I omitted to alter my fixed gaze, the result would have been different. My tired eyes and eyelids would have found relief by closure; my brain bewildered by the variety of strange sensations conveyed from eyes and limbs, my mind confused by all the circumstances, I should have had swimming in the head, and probably the sensation one experiences so commonly on looking down from a great height, or on gazing earnestly at a rapidly revolving object, and then more or less unconsciousness.

I was afterwards operated on by a potent mesmeriser under less exciting circumstances and did my utmost to have the state of somnambulism induced. I usually felt very comfortable indeed in about ten minutes, the effects on the skin of the gentle wafts of air from the passes being very agreeable. I closed my eyes and moved my limbs wherever I thought my mesmeriser wished; tried to have catalepsy of them induced, but always in vain, as I could move them at pleasure I was perfectly conscious, heard all that was said, and did not rouse myself from my pleasant daydream until my mesmeriser grew tired, or until I heard him declare that "the mesmeric sleep was passing into ordinary slumber!"

I am aware that this negative influence on myself does not disprove the mesmeric effects stated to have been produced on others, but it may serve to show how easily the imagination might have converted a simple physiological into a mesmeric agency.

Drowsiness and Partial Consciousness

That gentle passes, touches, and friction, should so act on the nerves of feeling as to produce a quieting and composing effect, and, if continued, a degree of somnolency, and perhaps ultimately perfect sleep, is not surprising to one who has experienced the soothing influence of gentle rubbing of the palms, or of brushing or combing the hair. That this state may stop short of deep sleep, and that during the imperfect slumber *general* consciousness may be gone, and yet different parts of the nervous system be still susceptible of acting in answer to impressions made, is probable; and that acts of various kinds might in this way be called forth without rousing the patient to such general consciousness as would be necessary to enable him to recollect afterwards what had taken place, has nothing unreasonable in it.

Readers of modern physiology are well aware that gentle and prolonged sensations, that are not in their nature disagreeable, have a calming and

soothing influence, and tend to induce repose, as surely as sudden, violent, and painful sensations excite and arouse. Hence, the power of subdued, monotonous noises, of dim twilight, and, to a certain extent, of warmth, in producing drowsiness. Whilst the mind is actively employed, this result will not ensue. Still, if these gentle sensations be—as most gentle sensations are—in themselves pleasant, inasmuch as they cause the attention to be directed to them, and in so far to be abstracted from any matter requiring deep thought, they may, after a time, affect one on whom at first they made no impression.

The phenomena of dreaming prove that the mind can be partially, without being completely conscious; can attend to one or several, without perceiving all, of the impressions that may be made. In other words, one part of the brain may sleep, whilst another is awake. A person who talks in his sleep exemplifies voluntary muscular movement; if he laughs or weeps, too, he adds emotional movement; yet he is certainly not fully conscious—not conscious at all, in the ordinary acceptation of the word. His brain, or his mind, is cognizant of the ideas which occupy him, and to that extent he may be said to be partly conscious, but he is not aware of what is going on around him. By acting cautiously on a particular sense, we may sometimes succeed in suggesting ideas, and thus waking part of the brain, without arousing the person. This has been proved experimentally with respect to common sensation, as when pinching a sleeping person will cause movement and an expression of uneasiness; and also with respect to hearing, as in the case given by Dr. Abercrombie of a military man who seems to have had a very unmartial dread of warfare. His brother officers were in the habit of whispering alarming sentences to him whilst asleep, and could thus produce a most ludicrous and involuntary manifestation of terror on the part of their sleeping and unwitting victim.

Emotional and voluntary movements thus may occur with so slight an amount of consciousness that the person who presents them need not necessarily be wholly awake, and will probably on awaking have no recollection of their occurrence.

Attention and Sensation

Can such a degree of insensibility to pain be produced by mesmeric processes as shall remove that natural source of dread of surgical operations? We have only two means of ascertaining insensibility to pain: the assertion of the patient, and the absence of the signs by which nature expressively betokens suffering. That these do not always coincide is shown by the following case from Dr. Dunn, of Manchester. A girl, who had been once or twice mesmerised, was affected with whitlow, requiring an incision to be made through the palmar surface of the affected finger. Every surgeon

will admit that no operation, great or small, is attended for the instant with more acute pain than lancing this highly-sensitive part when inflamed from sub-thecal abscess. The girl was mesmerised, the arm stretched out, and the incision made. Her face had an expression of great pain, large drops of perspiration burst out on her forehead; there was a feeble ejaculation, but the arm stirred not. Mesmeric passes were continued for some minutes more, and then the girl was roused. She assured Dr. Dunn that she was ignorant of what had occurred, and had felt no pain. The girl was previously acquainted with the alleged effects of mesmerism in producing insensibility, but she had no assignable motive for deception. Which of the two are we to believe, nature, or the patient?

To those familiar with surgical operations—who know the great difference in the firmness of patients, how some will bear the severest pain with unflinching fortitude, and almost with composure, whilst others exercise no control whatever over their feelings--there has yet been offered no satisfactory proof that mesmerism can effect, in this repect what its advocates affirm.

There is one point, however, which has hardly received the consideration it merits in reference to this question—viz, the degree in which sensation is modified by the state of mind of the patient. One who determines to behave with great firmness has his mind wrapped up in this determination, and abstracted from the impressions conveyed by the injured nerves; sensation, in consequence, is less. He therefore not merely conceals his suffering better, but he has less suffering to conceal. Conversely, a fearful, timid patient, dreading every touch, concentrates his attention on the suffering part, his brain is sensible to the slightest impression; the really great impressions made are perceived to their utmost; sensation is most acute, and becomes not only what the patient will not, but what he cannot, conceal.

Concentration of the mind on the impressions conveyed from one organ prevents our noticing those made upon another; rapt contemplation will cause us to neglect the impressions brought from any or all of the senses. Under certain states of the mind impressions which in ordinary circumstances would be attended to, are not perceived, and may act on the organs of our senses, without our consciousness, and therefore without their ever becoming sensations. Abstraction of attention will in some cases prevent the perception of impressions which would usually have caused sensations.

The change made in the brain by the sensory nerve is not all that is requisite for sensation; there must be, in addition, the mind's perception of such cerebral change. We have illustrations daily; for instance, when much interested, we forget the hour of meals, or perhaps fail to hear the clock strike; yet the stomach makes its appeal, causes that change in the brain which ordinarily would give rise to the sensation of hunger; and the sound of the clock makes its impression on the nerve, but excites not the sensation of hearing. Observe an intent listener: how he prevents

any diminution of sensation from his mind being in part otherwise employed—his eyes half-closed, his breath half-suspended, for the moment his whole mind is concentrated upon the sounds he wishes to catch. He hears them better, not so much from the sounds thus making a stronger impression—though, from the ear being better prepared than usual, that is to some extent the case—but chiefly from his mind attending better to the change going on in his brain.

It is generally thought that the action of the sensory nerves is centripetal only, in which case their conducting power could undergo no alteration from the effect of mental attention on the brain. There are many facts, however, both in health and disease, which should qualify the generally received opinion. Any alteration of conducting power in the nerves resulting from the action of the mind on the brain, would confirm the remark that abstraction of mind lessens, whilst attention to an impression increases the acuteness of the sensation.

By unconsciously directing his mind to the part on which the mesmeriser is operating, the patient, without being aware of it at the time, may materially heighten sensibility there, whilst the corresponding abstraction of mind lessens it elsewhere. As we know not all the laws of sensation, we cannot limit the effects upon sensation of any agent which certainly acts on and through the sensitive nerves Consequently, what in a slight degree can diminish sensibility, may, when acting more forcibly, for anything we know, temporarily abolish it Such a result must be proved a great deal better than it is at present before we can assent to it, yet still there is nothing in such a result that would be in discordance with previous facts.

The Imagination and Physiology

In reference to mesmerism, we may define imagination to be the conception of what does not actually exist, or at least of what does not exist to the extent supposed, and the firm conviction that this conception arises from reality. Hence, as the same attention which renders actual impressions more perceptible, and actual sensations more vivid, is equally potent in its effect on the ideas, which arise spontaneously, without any external cause, it is common for the mind to dwell on its own internal suggestions—the offspring of memory, modified, it may be, by erroneous opinion—until it believes them to have been occasioned by some outward agency, which in reality never operated at all.

But the effects of the mind on the body are not merely imaginary, though the mental condition in which they at first originated may have been nothing more. Sudden fright has caused death; sudden joy has done the same; and mental emotions less extreme have produced, and do con-

stantly produce every conceivable effect upon the body. Weeping from grief, biliousness from melancholy, perspiration from fear, are common examples of the power of the mind over secretion; blushing, and a feeling of heat from shame, paleness and sense of coldness from terror, throbbing of the heart and vertigo from rage, prove the same influence over circulation and sensation.

> There are examples of persons long paralytic, who have recovered the power over their limbs suddenly, when under the influence of violent emotions, and there are many instances of great, although temporary, increase of muscular strength from the influence of military ardour, and still more of religious enthusiasm or fanaticism Such emotions as act permanently, and without violent agitation—e.g., the emotion of pleasure that attends any occupation which interests and occupies the mind, the emotion of hope, from the prospect of lasting enjoyment, or of returning health when of sufficient intensity and duration, and especially when strongly contrasted with the previous state of the mind—have a decided effect on the circulation, which is chiefly observed throughout the capillary system They cause a slight but permanent glow on the countenance, which contrasts with the paleness of grief, they quicken the flow of fluids through, or the secretion on, the conjunctiva and cornea, and give brilliancy to the eye, they perhaps elevate slightly the temperature of the surface, and certainly cause it to be less easily depressed by cold They have a well-ascertained effect in protecting the body against the influence, not only of cold, but of malaria and contagion, therefore against all the most powerful causes of acute disease, they manifestly accelerate the convalescence from acute diseases, and are found very beneficial in various chronic diseases, in which debility is a prominent symptom The effect of these emotions is therefore gently and permanently, and often most beneficially, exciting or tonic, on the circulation
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> (Alison's *Physiology*)

We may conclude that there are many diseases which arise through the mind, still more which are kept up by the influence of the mind on the body, many which may be removed by acting on the mind, and through the mind on the system, and none over which the state of mind does not exert some influence

We cannot doubt that mesmerism may have effected many cures surprising enough to the patient and their friends What vaunted and accredited remedy or plan of treatment does not? Its efficacy in this respect does not prove the reality of any occult influence being communicated.

In all chronic diseases, abstraction of the mind from perpetually dwelling on the disorder, a firm hope of recovery, and a complete faith in the value of the means employed, conduce very greatly to obtaining the desired result. The nature of the means is of less importance Every remedy or plan that gains the confidence of the public is successful in its day; but no sooner is that day gone by than the remedy loses its efficacy—the talisman of cure is broken Knowing how much the whole nervous system is under the influence of the mind—how languid when the mind is de-

pressed; how brisk when the mind is elated—can we wonder that to exchange despondency, want of confidence, and constantly looking inwards upon self, for hope, implicit faith, and attention, maintained by novelty, should occasionally produce the happiest effects on the health? Besides its influence on morale, however, in which I believe its asserted remedial power principally consists, if by mesmeric procedure we can induce refreshing sleep and modify sensibility, there can be no question but by these added to its effect on the mind, much good may sometimes have been done.

The mind governs the action of the brain to a great extent, can set this or that part to work, so to speak, at will, and can of itself, through its cerebral organs, induce any and every phenomenon which physiology refers to the brain To examine the influence of the mind on the body is, therefore, merely to ascertain the power of the brain over different parts of the living system.

The Probable and Possible in Mesmerism

The usual, almost universal, mode of framing a mesmeric theory, appears to have been to imagine some favorite explanation, or rather, supposed explanation, and then very philosophically to test this by experiment. Experiments *never fail* to substantiate the previous conception. How can they, when the *will of the theorist* is the main spring of the phenomena he elicits? Having obtained the facts, mere induction is alone required to establish the inference We have thus rationales and so-styled theories as numerous as the mesmeric "facts" upon which they are based, quite as contradictory, and almost as absurd.

The existence of so much that is spurious does not prove that all that has been given to the world under the name of mesmerism is necessarily false, however difficult it may be to discover the truth amidst the heap of exaggeration and misinterpretation in which it lies concealed No subject, perhaps, can long maintain its ground in claiming general attention, without enlisting in its ranks indisputable facts of some kind These facts may prove to be old and well known; they may not justify, in the slighest degree, the inferences which have been drawn from them; they may admit of much more rational explanation than the one afforded; still they lend plausibility to the argument, and being themselves beyond dispute, confer something of the semblance of truth on the more exceptionable data with which they are allied Thus, astrology contained some truths; alchemy far more; but these truths are not to be found in the general principles of the supposed sciences which called them forth.

Since every writer in support of animal magnetism asserts with equal confidence what we consider the probable and the impossible, there is

considerable difficulty in admitting from the same authority what really may prove to have been uncoloured facts. On this account it is impossible at present to feel satisfied of the entire truth of any of these so-called facts. Still several of them are probable, others less probable would not disagree with established truths, whilst the most marvellous could hardly be received on any testimony, and certainly have no claim to consideration on that at present furnished.

Passing by what are styled the higher phenomena—clairvoyance, intuition, prevision, increased intellectuality, and moral rectitude—as far above the flights of reason and almost of fancy, what are the mesmeric phenomena about which there is less than the usual discrepancy of statement? Of the alleged results of mesmeric processes, I believe there are:

Proved—Quietude; composure; sleep; a sleep-like state.

Probable, but requiring confirmation—Traction; muscular rigidity; convulsions; heightened sensibility; diminished sensibility; and unconsciousness on the part of the patient on being demesmerized.

Possible, but not very probable—Insensibility to severe pain, for a given length of time, at pleasure.

Impossible, as far as anything can be so—Clairvoyance; intuition; prevision; community of thought; involuntary and complete subjection of mind to the mesmeriser.

Should the probable facts of mesmerism prove to be the only real ones, will they support the inferences of the mesmerists? By no means. Capable of being induced by methods, and under circumstances entirely different, they cannot depend upon any special physical agent being given or withdrawn, on the existence of an occult magnetic or mesmeric agency. They resolve themselves into phenomena of the nervous system.

If we can find analogues to many of the best accredited mesmeric phenomena amongst the acknowledged effects of the mind on the body, and can refer the remainder, without any violation of known facts, to the ascertained laws of action of the nervous system, what reason have we to assume a new agent, to exchange a power of which we know something for one of which we know nothing, especially when the assumption of the latter in no respect lessens difficulty? In other words, the mind and nervous energy are all that we require to account for what is likely to be true.

Deception, Intentional or Unintentional

Whatever may be the genuine effects producible by mesmeric processes, I am perfectly convinced, that in the great majority of cases at public exhibitions, in which they were confidently stated to be manifested, there was deception, either intentional or unintentional. Deception, however, may

exist to a great extent without implying wilful deceit. Medical men, who are in the constant habit of carefully weighing the evidence of individuals in reference to their own states, know better than others how frequently a person's testimony as to what occurs to himself is not trustworthy. With every intention to be accurate and truthful the patient often states what he believes to be true, but what is not to be implicitly relied on as a guide in practice. It is a curious fact in the philosophy of the mind how prone we are voluntarily to deceive ourselves, and then firmly to believe in the self-created deception as if it were a truth not to be doubted.

Dr. Dunn tells of a lad who had learnt that a mesmerised object ought to stiffen his muscles. Dr. Dunn told the lad to lay hold of a stethoscope; the thick end of which, the boy was informed, was mesmerized, the other not. The instrument had in fact never been touched that day. The boy grasped the thick end. He was requested to put the instrument down again. He said *he could not*—his arm was rigid. Demesmerised, he was desired to take hold of the small end of the stethoscope. This, however, he could loose again at pleasure.

Hypnotism

Hypnotism, as distinguished from mesmerism by Dr. Braid in his recent book *Neurypnology*, does not posit the action of any nervous fluid, or other agency furnished by a second person, but ascribes all its phenomena "to an impression made upon the nervous centres by the physical and psychical conditions of the patient." Hypnotism is said to be like sleep, but unlike ordinary sleep hypnotism sometimes is attended by stupor, palsy, and muscular movements. When a person is not fast asleep, but voluntarily, though he believes otherwise, in a half-sleeping, half-waking state, with his eyes closed, the imagination has full play. A credulous person will believe that he hears better, and state it confidently; yet his statement is not a proof of the fact. The hypnotists allow that unless there is fixation of the mental eye—i e, an entire giving up of the mind to the hypnotising process, they fail to induce the hypnotic phenomena: thus, the mental eye is essential. But a blind man, or a man with his eyes closed or bandaged, who will only think of some dull subject without intermission, may become hypnotised. Hence the corporeal eye is not essential. If follows that as the mind without interfering with the body further than to prevent any causes of disturbance from interfering with the mind, is quite sufficient to produce hypnotism, that state is sometimes produced *entirely* through the mind; and that as hypnotism can never be induced where the mind is not more or less affected, hypnotism is never produced *solely* by any induced physical condition of the body. And if the body be primarily affected, only inasmuch as a certain small part of it is wearied

by prolonged action—though when a person hypnotises himself in one minute, the body can scarcely be said to have anything whatever to do with the effect—as we know by experience that this corporeal condition alone cannot lead to such wonderful effects as those asserted, to what must these be referred? In the first instance, solely and exclusively to the other elementary condition laid down—the state of the mind. We know by experience that all imaginable wonders may be performed under an excited and perverted imagination. We know that the body may then be secondarily affected to an almost incredible extent. We know by experience that reason is no longer trustworthy; that a man first deceives himself, and then others, with respect to the causes of sensations and actions which, as they depend on imagination, are *at first* themselves imaginary. Hence, the firm conviction of one, however respectable and desirous to speak the truth, who has given himself up to be hypnotised with perfect faith and excited imagination, cannot always be admitted as unquestionable proof of the real origin of what he experienced.

Expectations

Instances are commonly given in which we are told the imagination could exercise no influence. But how can we prevent the mind from taking part in any mode of acting through the senses? If a mesmeriser would affect a man in the midst of a crowd who was expecting no mesmeric influence to be exerted, and could ascertain nothing to excite his suspicion through the medium of his senses, we should see no effect from the imagination, and it may be doubted whether we should have much more from the mesmerism. In a large town, a subject of sufficient notoriety to demand a public lecture for its elucidation can seldom be unknown to any who attend. And if previously acquainted with the effects which are said to be produced, the patient fully participates in the confidence with which the lecturer expects their production His imagination is excited; his expectation raised: the first feeling of fatigue is mistaken for the first effect of the occult influence; faith becomes unbounded; the confident belief that certain actions will inevitably ensue leads to their performance; half, and only half conscious, the patient obeys the presumed will of his magnetiser, and deems himself the while a passive agent impelled by some power as irresistible as it is wonderful!

In order to ascertain how far the usual effects would ensue where the imagination, in a great measure, lay dormant, it seemed desirable to select persons who had never heard of mesmerism, knew nothing of phrenology, and if they did know what imagination meant, were at least not prone to indulge in its pleasures or suffer from its pains Such persons are as common in our rural districts as they are rare amongst the more intelligent

artisans of towns. Upon such I have made numerous experiments, carefully avoiding everything that would occasion alarm or in any way strongly excite imagination. In many instances, nothing like the stated mesmeric or hypnotic effects would ensue; the patient at length, in spite of remonstrance, relieving his eyes by moving them about and winking, thus breaking the spell. But after being thus foiled for an hour or two, I have caused sleepiness in a few minutes by bringing the mind into play by requesting a continuance of the experiment, and giving a serious and earnest assurance *that sleep would be sure to ensue* in a few minutes more. In many cases, in which there was before this intimation no apparent chance of such an occurrence, sleep soon followed.

A stout young rustic, for example, whom I had failed to hypnotise after a trial of an hour and a half on a previous occasion, on being assured that sleep would be certain to ensure in ten minutes, within that time closed his eyes and breathed sonorously. He moved his hands the way he thought I wished, put one up to his right eye to allay some slight uneasiness there, and then settled himself comfortably in his chair. I now gently raised his eyelids which had not been closed for more than three minutes. On this he supposed it was intended that he should awake, and accordingly he got up. At first he said *he thought* he had slept; and after some deliberation he became quite *sure* that he had! He expected sleep with perfect faith, and he believed that it came. Had he expected the occurrence of any of the mesmeric wonders with equal faith, no doubt they would have been performed, to the best of his ability, with equal certainty. Had such a patient been acquainted with what mesmerism is said to produce, or had he been at a public lecture on mesmerism and heard all that its advocates usually assert and declare with confidence to be true, and then witnessed the usual phenomena of cataleptic rigidity and insensibility to pain, and following the leader, and singing when asked, and dancing to music, and the rest, in a subject prepared for the occasion, doubtless he would afterwards himself have presented similar phenomena, though probably in less perfection; and he would not merely assert to others, but himself believe, that he was scarcely conscious or not conscious at all whilst he did all this performance, and that he had done it from some indescribable occult influence which he could not resist.

7

Synopsis of Counter-Experiments Undertaken by James Braid to Illustrate his Criticism of Reichenbach



Arthur Edward Waite (Ed.)

Having proved to his own satisfaction that patients in the hypnotic state were not susceptible to a special influence emanating from magnets without suggestion on the part of the operator, Braid proceeded to experiments in the vigilant state These were of two kinds:—(1) When the subjects had an opportunity of seeing what was being done, and expected something to happen; (2) When they did not see, but supposed an operation was taking place, and consequently expected something.

General Results

> With nearly all patients I have tried, many of whom had never been hypnotized or mesmerised, when drawing the magnet or other object slowly from the wrist to the points of the fingers, various effects were realised, such as a change of temperature, tingling, creeping, pricking, spasmodic twitching, catalepsy of the fingers, or arm, or both; and reversing the motion was generally followed by a change of symptoms, from the altered current of ideas thereby suggested. Moreover, if any idea of what might be expected existed in the mind previously, or was suggested orally, during the process, it was generally very speedily realised The above patients being

now requested to look aside, or a screen having been interposed, so as to prevent their seeing what was being done, and they being requested to describe their sensations during the repetition of the processes, similar phenomena were stated to be realised, even when there was nothing whatever done beyond watching them and noting their responses They believed the processes were being repeated, and had their minds directed to the part, and thus the physical action was excited, so as actually to lead them to believe and describe their feelings as arising from external impressions.

Typical Cases

I "The above fact was most remarkably evinced in a young gentleman twenty-one years of age I first operated in this manner on his right hand by drawing a powerful horse-shoe magnet over the hand, without contact, whilst the armature was attached He immediately observed a sensation of cold follow the course of the magnet I reversed the passes, and he felt it *less cold*, but he felt no attraction between his hand and the magnet I then removed the cross-bar, and tried the effect with both poles alternately, but still there was no change in the effect, and decidedly no proof of attraction between his hand and the magnet In the afternoon of the same day I desired him to look aside and hold his hat between his eyes and his hand, and observe the effects when I operated on him, whilst he could not see my proceedings He very soon described a recurrence of the same sort of sensations as those he felt in the morning, but they speedily became more intense and extended up the arm producing rigidity of the member In the course of two minutes this feeling attacked the other arm, and to some extent the whole body, and he was, moreover, seized with a fit of involuntary laughter, like that of hysteria, which continued for several minutes—in fact, until I put an end to the experiment. His first remark was, 'Now this experiment clearly proves that there must be some intimate connection between mineral magnetism and mesmerism, for I was most strangely affected, and could not possibly resist laughing during the extraordinary sensations with which my whole body was seized, as you drew the magnet over my hand and arm' I replied that I drew a very different conclusion from the experiments, as *I had never used the magnet at all*, nor held it, nor anything else, near to him; and that the whole proved the truth of my position as to the extraordinary power of the mind over the body, and how mental impressions could change physical action"

II. Another experiment was performed upon a gentleman, twenty-eight and a half years of age, in perfect health at the time "I requested him to extend his right arm laterally, and let it rest on a chair with the palm upwards, to turn his head in the opposite direction, so that he might not see what I was doing, and to concentrate his attention on the feelings which might arise during my process In about half-a-minute

he felt an *aura* like a breath of air passing along the hand: in a little after, a slight pricking, and presently a feeling passed along the arm, as far as the elbow, which he described as similar to that of being slightly electrified. *All this, while I had been doing nothing*, beyond watching what might be realised. I then desired him to tell me what he felt now,—speaking in such a tone of voice as was calculated to lead him to believe I was operating in some different manner. The result was that the former sensations ceased; but, when I requested him once more, to tell me what he felt *now*, the same sensations recurred. I then whispered to his wife, but in a tone sufficiently loud to be overheard by him, 'Observe now, and you will find his fingers begin to draw, and his hand will become clenched,—see how the little finger begins to move,'- and such was the case; 'See the next one also going in like manner,'—and such effects followed; and finally, the entire hand closed firmly, with a very unpleasant drawing motion of the whole flexor-muscles of the fore-arm. I did nothing whatever to this patient until the fingers were nearly closed, when I touched the palm of his hand with the point of my finger, which caused it to close more rapidly and firmly. After it had remained so for a short time, I blew upon the hand, which dissipated the previously existing mental impression, and instantly the hand became relaxed. The high respectability and intelligence of this gentleman rendered his testimony very valuable; and especially so, when he was not only wide awake, but had never been either mesmerised, hypnotised, or so tested before." In another case, when the law had been explained to the subject and there was an attempted repetition of the experiment upon a different member, the effects took place less rapidly.

III. "A lady, thirty years of age, was requested to hold out her right hand over the arm of an easy-chair, whilst she turned her head to the left, to prevent her from seeing what I was doing, and to watch and describe to me the feelings she experienced in the hand during my process, which was to be performed without contact. She very soon felt a pricking in the point of the third finger, which increased in intensity, and at length extended up the arm. I then asked her how her *thumb* felt, and presently the same feeling was transferred to it; and when asked to attend to the *middle of the fore-arm*, in like manner the feeling was presently perceived there. All the time I had been doing *nothing;* the whole was the result of her own mind acting on her hand and arm. I now took the large magnet, and allowed her to watch me drawing it slowly over the hand, when the feeling was much as before, only that she felt the cold from the steel when brought very near to the skin. It was precisely the same when closed as when opened, and the *same* sensations occurred when the north pole alone was approximated, or the south alone, or both together. She experienced no sense of attraction between her hand and the magnet from either pole, nor from both combined. I now requested this lady.

to keep a steady gaze upon the poles of the large horse-shoe magnet, and tell me if she saw anything (the room was not darkened nor was the light strong), but nothing was visible. I then told her to look steadily, and she would see flame or fire come out of the poles. In a little after this announcement she started, and said, 'Now I see it, it is red: how strange my eyes feel,' and instantly she passed into the hypnotic state. This lady had been repeatedly hypnotised. I now took the opportunity of testing her as to the alleged power of the magnet to attract her hand when asleep, but, as in the other cases, the results were quite the contrary—the cold of the magnet (and of either pole alike) caused her to withdraw her hand the moment it touched her. I now requested her to tell me what she *saw* (she being still in the sleep). She said she still saw the red light. I desired her to put her finger to the place where she saw it. This she declined to do, being afraid that it would burn her. I thereupon assured her that it would not burn her, upon which she pointed *to the same place where the magnet was held before she went into the sleep,* instead of to where it was now held, which was near to her face, but towards the *opposite* side of the chair. This lady does not see from under her closed eyelids when hypnotised, as some patients do; and the evidence her testimony affords in support of my opinion upon this subject is very conclusive, as she is a lady of very superior mental attainments, and one whose testimony merits unlimited confidence."

It will be observed that in the first case a sense-hallucination was produced by experimenting with the magnet, which was afterwards dispensed with in favour of simple suggestion; in the second case the magnet was not used at all; the third experiment began with simple suggestion, while the magnet was used subsequently. These selected instances exhaust therefore the possible variations in procedure. A cabinet experiment, which offers more close analogy with Reichenbach's method, may be cited in conclusion.

IV. "A lady, upwards of fifty-six years of age, in perfect health, and wide awake, having been taken into a dark closet, and desired to look at the powerful horseshoe magnet of nine elements, and describe what she saw, declared, after looking a considerable time, that she saw nothing. However, after I told her to look attentively, and she would see fire come out of it, she speedily saw sparks, and presently it seemed to her to burst forth, as she had witnessed an artificial representation of the volcano of Mount Vesuvius at some public gardens. Without her knowledge, I closed down the lid of the trunk which contained the magnet, *but still the same appearances were described as visible* By putting leading questions, and asking her to describe what she saw from *another* part of the closet (where there was nothing but bare walls), she went on describing various shades of most brilliant coruscations and flame, according to the leading questions I had put for the purpose of changing the fundamental ideas. On repeating the experiments, similar results were repeatedly realised by this patient.

On taking her into the closet after the magnet had been removed to another part of the house, she still perceived the same visible appearances of light and flame when there was nothing but the bare walls to produce them; and, two weeks after the magnet was removed, when she went into the closet by herself, the mere association of ideas was sufficient to cause her to realise a visible representation of the same light and flames. In like manner, when she was made to touch the poles of the magnet when wide awake, no manifestations of attraction took place between her hand and the magnet, but the moment the idea was suggested that she would be held fast by its powerful attraction, so that she would be utterly unable to separate her hands from it, such result was realised; and, on separating it, by the suggestion of a new idea, and causing her to touch the *other* pole in like manner, predicating that *it* would *exert no attractive power* for the fingers or hand, such negative effects were at once manifested. I know this lady was incapable of trying to deceive myself, or others present; but she was self-deceived and spell-bound by the predominance of a preconceived idea, and was not less surprised at the varying powers of the instrument than others who witnessed the results."

By other experiments Braid found that a strong mental impression could produce the delusion of flame and light in broad daylight and during the waking state. He adds furthermore that "the same influence may be realised in respect to sound, smell, taste, heat, and cold," and all these not vaguely or generally, but after a vivid and discriminating manner.

V. The experiments of Reichenbach had been apparently transplanted to London, and when Braid paid a call on an "eminent and excellent physician," who used mesmerism occasionally in his practice, it was to find that he had experienced extraordinary effects from the use of magnets during that state. "He kindly offered to illustrate the fact on a patient who had been asleep all the time I was in the room, and in that stage during which I felt she could overhear every word of our conversation. He told me, that when he put the magnet into her hands, it would produce catalepsy of the hands and arms and such was the result He wafted the hands and the catalepsy ceased. He said that the mere touch of the magnet on a limb would stop it, and such he proved to be the fact. I now told him that I had a little instrument in my pocket, which, although far less than his, I felt assured would prove quite as powerful, and I offered to prove this by operating on the same patient, whom I had never seen before. . . . My instrument was about three inches long, the thickness of a quill, with a ring attached to the end of it. I told him that when put into her hands, he would find it catalepsize both hands and arms as his had done, and such was the result Having reduced this by wafting, I took my instrument from her, and again returned it, *in another position*, and told him it would *now* have the very reverse effect—that she would not be able to hold it, and that although I closed her hands on it, they

would open, and that it would drop out of them, and such was the case, to the great surprise of my worthy friend, who now desired to be informed *what I had done to the instrument to invest it with this new and opposite power.* This I declined doing for the present. . . . I now told him that a touch with it on either extremity would cause the extremity to rise and become cataleptic, and such was the result; that a second touch on the same joint would reduce the rigidity, and cause it to fall, and such again was proved to be the fact. After a variety of other experiments, every one of which proved precisely as I had predicted, she was aroused. I now applied the ring of my instrument to the third finger of the right hand, from which it was suspended, and told the doctor that when it was so suspended, it would send her to sleep. To this he replied, *'it never will,'* but I again told him that I felt confident. . . . We were then silent, and very speedily she was once more asleep. Having aroused her, I put the instrument on the second finger of her left hand, and told the doctor it would be found she could *not* go to sleep when it was placed there. He said he thought she would, and he sat steadily gazing at her, but I said firmly and confidently that she would not. After a considerable time the doctor asked her if she did not feel sleepy, to which she replied, 'not at all.' I then requested her to look at the point of the forefinger of her right hand, which I told the doctor would send her to sleep, and such was the result. After being aroused, I desired her to keep a steady gaze at the nail of the thumb of the left hand, which would send her to sleep in like manner, and such proved to be the fact. Having repaired to another room, I explained to the doctor the real nature and powers of my little instrument -that it was nothing more than my *portmanteau-key and ring,* and that what had imparted to it such apparently varied powers was merely the prediction which the patient had overheard me make to him, acting upon her in the peculiar state of the nervous sleep, as irresistible impulses to be affected, according to the results she had heard me predict."

8

Practices in Vogue in the So-Called Hypno-Therapeutic Department of La Charité Hospital, under the Direction of Dr. Luys

Ernest Hart

I have been able by control-experiments on the very subjects here described, and on others who have furnished the basis of many of the lectures and publications by Dr Luys and Colonel de Rochas, to unmask the deception and credulity which have given rise to these strange proceedings. An extensive and pretentious mass of literature has accumulated around them, and both from the Continent and from this country many persons have been attracted to them, and led to attach to them a scientific value which I shall show to be wholly absent It is, therefore, a case in which firm and plain words need to be spoken and I cannot shrink from so doing. It is lamentable that such proceedings should be carried on in the name of science, and that one of the greatest of the Paris hospitals should be made the theatre of such inanities and deceptions. The scientific reputation of a department of a great State institution is seriously affected by these mummeries, and the honor of French medical science is injured before the world when the able journalists of the Continent and Great Britain

Selections from E Hart *Hypnotism, mesmerism, and the new witchcraft.* New York: D. Appleton, 1898

are hoodwinked by impostors acting under the shelter of the name of a physician who has allowed himself to be their unconscious dupe and enthusiastic patron. Colonel de Rochas is a gentleman of the most undoubted good faith Neither can any one for a moment doubt the honour and good faith of Dr. Luys, however much we may regret and even blame the persistent credulity he has shown and the inadequacy of the means which he has taken to protect himself and his pupils, his foreign visitors and his right-minded patients from very mischievous deception, and from contact with a certain number of persons, all communication with whom ought for many serious reasons to be shunned. . . .

In order to give an idea of the practices in vogue in the so-called hypno-therapeutic department of La Charité Hospital, under the direction of Dr. Luys, and of the principal performances which are given there, I will briefly summarise the leading features of some of those shown to me by M Luys during several of my visits to his clinic. . . .

The first series of phenomena presented to me were illustrative, and supposed to be demonstrative, of the extreme sensitiveness of the hypnotised patient and highly trained subject to magnetic currents however feeble, to residual magnetic impressions, to magnetic effluvia, to the perception of coloured luminous atmospheres radiating from and playing around the poles of a magnet or the anodes of a faradic machine, and to flames and effluvia of like character proceeding from the features, the fingers and the hands of the human subject

The subject presented to demonstrate these phenomena was the man Mervel, who indeed played a great part in many of the subsequent demonstrations a sad and unhappy being, extremely pathological in his neurotic aptitudes and infirmities, an undoubted hypnotic and hysteric, but with all the cunning so often superadded to this condition and commonly playing a large part in the clinical picture derived from such performances . . .

He himself had walked in his sleep while a boy, and was 'born a somnambulist.' Since he had been in the wards he had been treated by prolonged hot baths and lengthened sittings of induced sleep. At one time he said he could not be made to eat, but he had been made to eat 'by suggestion.' and now had a very good appetite He was still subject to attacks of lethargy and unconsciousness, and had on the previous morning been picked up in the courtyard where he had fallen senseless, and also to fits of somnambulism: he was sleepless, depressed, haggard and altogether a miserable personality Having put him to sleep, or what looked like hypnotic lethargy, almost instantaneously, by holding two fingers before his eyes, and having rapidly brought him into the lucid stage of somnambulism with the eyelids open, Dr Luys took into his hand a bar magnet and handed it to the hypnotised Mervel. 'What do you see,' he said, 'from that pole?' Presently Mervel's features, which up to that moment had been expressive only of stupor, became animated and smiling; he

caressed the end of the magnet with both hands. 'Ah,' he said with delight, and like a child playing with some beautiful new toy, 'see the blue flames; it's blue, the flames are playing about, it is the colour of the sky—the colour of heaven.' Then the bar was reversed, and the opposite end was shown. 'Ah,' he said, 'that's red.' His features contracted, his brows were knit, his face was expressive of horror and fright. 'Take it away,' he said, 'it's red, red; I don't like it, it hurts me.' Instead of taking it away, however, it was pointed at him. He rose from his seat and moved rapidly away from it backwards, and nearly fell in his retreat to the end of the room. To restore his equanimity the reverse pole was again presented to him. Once more he instantly changed his expression. His features were lighted up with pleasure. 'Ah, c'est bleu;' and he followed the magnet to his seat and fell back into the chair, caressing the magnet as though with extreme delight. These phenomena, Dr. Luys explained to me, were constant, and were related to the attractive and repulsive effects of the north and south poles of the magnet respectively, and to the coloured flames which highly sensitive subjects in the somnambulistic state saw emanating from them.

This proceeding was varied in different forms. Thus on another occasion Dr. Luys took out of his pocket two photographed papers mounted on cardboard and contained in envelopes. One of these, he explained, had been placed in front of a magnet, and the surface of the magnetic pole had been slowly photographed on to it, the other had ben simply exposed to the light; both presented a tolerably uniform and fairly similar blackened surface, but with easily-recognisable differences of coloration. When one of these was presented to the patient he again became ecstatically delighted. 'Ah,' he said, 'it's blue, light blue, the beautiful flames are playing on the surface.' This, it seems, was the magnetic photograph. Then the other was presented to him. He looked at it with a vacuous, indifferent, and uninterested expression. 'Ah,' he said, 'it's dark, it's grey, I don't see anything.' This was the unmagnetised photograph. Again he was shown a photograph of Dr. Luys himself, which he examined with great interest. 'Yes,' he said, 'it is full of lights and colours, there are red flames issuing from the right eye and from the cheek and mouth and ears on one side of the face, and from the other come blue flames, all blue.' 'That,' said Dr. Luys, 'is how he sees me, and, strange to say, the same magnetic flames are seen by him on my photograph. And what is still more remarkable,' added the professor, 'if you give him an illustrated paper he sees blue and red flames radiating from the printed pictures taken from photographs of living individuals, but never from fancy drawings or engravings which have not been photographed from the living subjects in the first instance.'

A further phenomenon and final marvel in this order of ideas was at more than one sitting presented in the same subject. He was thrown into slumber, and a circlet of magnetised iron was placed round his head

and forehead. 'In that magnetised head cap,' said Dr. Luys, 'are stored up the thoughts and ideas of a patient who had been the subject of hallucinations of persecution and of black misery. You see that Mervel is now happy and contented enough, but if I now put this magnetised coronet on his head, he will become impregnated with those influences and that order of thought.' This was done, and very quickly his features became haggard, his expression that of melancholy and fear; presently he struggled, with horror and fright depicted in his face, to escape from imaginary persecutors. 'They are following me,' he cried out; 'I can't get away from them, they are torturing me,' and he endeavoured vainly to escape. Presently the circlet was taken from his forehead, he was told to be calm, and soothed and sent again into profound sleep, then told that he was to awake forgetting all that had happened and to pass a happy day and be very well. He did awake with a dazed look for a short time, and presently said, smilingly, in answer to questions, that he was feeling well, that he did not remember that anything had happened, and that he was going to have a quiet, pleasant day. Dr. Lutaud, who was present with me at this performance in the wards, wickedly observed to Dr. Luys that this newly-found power of storing up habits of mind and thoughts in a magnetic frontal might have some very convenient uses, especially as this set of ideas had already been stored for six months in this particular apparatus aparently not by any means exhausted by use, and was capable of application within a period of time of which experience had not yet prescribed any limits. It was almost too much for our gravity when Dr. Luys seriously replied that no doubt it was so and might be made very useful, and that he was using such crowns with good therapeutic effects on his patients. Dr. Lutaud observed that a husband about to lose a beloved wife might store up in such a circlet her affectionate thoughts and good disposition, and might on marrying again infuse these delightful qualities into the brain of his second wife. To this, also, Dr. Luys assented. These were the leading phenomena presented in connection with the magnetic susceptibilities and perceptions of the hypnotised subject. They were repeated on other subjects, Clarice, and later on, in my own apartments, Jeanne, a celebrated subject of Luys's lectures, reproduced them to perfection. . . .

[I shall shortly] relate the counter-experiments by which I easily demonstrated, in the presence of Dr. Lutaud, Dr. Sajous, M. Cremière, Dr. Olivier, and others, that the whole of these phenomena in all of these patients and subjects were, as might have been expected, frauds, impostures, and simulation, originating, no doubt, in suggestions made to them, lectures given before them, documents communicated to them, and verbal conspiracies hatched in the waiting-room, carried out in the wards, and cleverly worked up by practice to an extraordinary degree of perfection. So wonderfully dramatic were the attitudes and expressions, so graphic, although

monotonously similar, were the expressions displayed, so mixed and interwoven were the really hysteric, cataleptic, and somnambulistic conditions presented, heightened and combined by conscious fraud, that it was difficult not to be startled by the extraordinary series of performances shown, and almost impossible at first to divide the basis of reality from the huge superstructure of histrionic fraud and impudent imposture I may say at once, however, that I succeeded in all of these subjects, and before the same witnesses, and on the same subjects, in reproducing all the phenomena by methods which were quite incompatible with any truthfulness or reality in the acts or in the explanations given to them. . . .

These phenomena form another chapter in the strange demonstrations which, to avoid mystification, I may venture at once by anticipation, however disrespectfully, to describe as fantastic and outrageous, but all of which are seriously presented as new truths of science to a select band of students and medical visitors, in this great Paris hospital. They would hardly be worth serious notice here but for the solemn arena in which they are transacted a hospital ward in which the 'Times' correspondent stated that fraud was impossible – the solemn scientific nomenclature under which they are described and classified, the considerable vogue which has been given them by the descriptions of eminent journalists, the extent to which they are already permeating the higher ranks of society in Paris and attracting ladies of note from England, and the ramifications with which I have found them to be connected .

Dr. Luys considers that the statement which I have published of the results of my control experiments incriminate his honour as a man of science. I have, so far as I know, carefully avoided any comments which could be construed in that sense, although I have thought myself more than justified in intimating that he has pushed negligence in a so-called scientific investigation, put forward by him in great detail and with great solemnity for many years, to the utmost verge of blamable want of carefulness. This I shall have no difficulty in proving up to the hilt, and I shall adduce evidence which is incontrovertible, and rests not only on my own observation but on that of highly competent and independent observers who were present at my experiments, and who have signed the notes of the sittings. . . .

I had very numerous sittings and carried out in the methods above described numerous and complete counter-tests, selecting always and only the patients who had been presented to me by Dr. Luys and Colonel de Rochas, and the subjects who had been operated on. Never by any accident did any one of these subjects show any power of discerning the effects of magnetised from nonmagnetised iron; the pretension of Dr. Luys that they could distinguish between magnetic photographs so-called and non-magnetic were in every case ascertained to be unfounded; the communication of sensations or thought by contact never took place in any

case unless the subjects knew precisely what was the nature of the comedy to be played, and then they played it more or less well. The cat performance and the drunken scenes came off six times when the subject supposed that the tubes contained alcohol, but when they really contained divers substances, none of which were alcoholic; the scenes produced were acted in the same way under the influence of an empty tube, of a tube of alcohol, and of a tube of valerian.



(a) (b)

FIG. 1. (a) Esther under the influence of a tube containing a small quantity of essence of thyme, this tube is applied to the nape of the neck on the right at the back She is prey to terrible hallucinations. (b) Esther under the influence of hydrochlorate of morphine. The tube has been placed in front of the left eye, and the face expresses very clearly a state of beatitude.

A chief obstacle in the way of the scientific investigation of hypnotism is the difficulty of finding any solid footing in the quagmire of error, self-delusion, and downright imposture in which this *ignis fatuus* of the human intellect lives and moves and has its being. Even in the hands of medical men of high character the proportion of truth to mere error is as Falstaff's halfpenny worth of bread to his intolerable deal of sack. As for the hypnotism and the crystal-gazing of the drawing room and of the public platform it is, so far as the 'subjects' are concerned, of imposture all compact. I have already shown how Dr. Luy's subjects, in their own words, 'gulled' him, and how sadly he played the part of dupe and decoy. If such things be possible in the green wood of an intellect originally trained to scientific observation, what is likely to happen in the dry sticks and shavings of half-educated, wholly uncritical, and superstitious minds ready to take fire at the slightest spark of the mysterious . . . ?

I pass now to the consideration of the underlying substratum of fact on which this huge structure of imposture and credulity is built. As I have already sufficiently indicated, the artificially induced sleep known by the old-fashioned Latin name somnambulism, or subsequently as mesmerism, and rebaptized in Greek, hypnotism, as though it were a new thing, is a subjective phenomenon of great interest, and of some complexity. It is, perhaps, not altogether unworthy of the attention which has been bestowed on it by French and German physicians. On the other hand—and here I only express a purely personal opinion. . . . I am disposed to think that it is more the picturesque eccentricity of the phenomena and the striking *mise en scène* to which human automatism lends itself and which has attracted so much attention, than the real medical or physiological importance of the subject. . . .

If a striking effect is to be produced by an apparatus calculated to affect the imagination powerfully, the faith-curer of the grotto has this advantage over the *endormeur* of the platform or the hospital. He does not intrude his own personality and train his patient to subject his mental *ego* to that of his 'operator.' The 'mesmeriser' seeks to dominate his subject; he weakens the will power, which it is desirable to strengthen, and aims at becoming the master of a slave. I do not need further to emphasise the dangers of this practice. . . .

II. METHODOLOGY

1

A Report of Attempts to Produce Uniocular Blindness by Hypnotic Suggestion



Frank A. Pattie

The experiments here reported were inspired by a statement of Prof. McDougall on the genuineness of hypnotically induced uniocular blindness. He firmly believes that genuine, unsimulated blindness, due to an interruption of functional continuity within the nervous system, may be produced in the hypnotic trance.[1]

The history of experimental work on this subject is meagre. Pierre Janet[2] reported his experience with functional uniocular amaurosis occurring in hysteria, stating that this disturbance disappears when the patients are put into situations where binocular vision is used and they cannot tell what is stimulating each eye, as in the case of Flees's box, a test for malingering. I have found in the literature no experiments on producing blindness hypnotically except those of Lundholm.[3] His experiments differ from mine in that (1) his visual anaesthesias were produced only in the post-hypnotic

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[1] William McDougall, *Outline of Abnormal Psychology* (1926), pp. 89–90.

[2] Pierre Janet, *The Major Symptoms of Hysteria*, 1907, pp. 188–95; *Névroses et Idées Fixes* (1898), II, 278–82. Reference is made in his *Mental State of Hystericals* to work by Parinaud, Régnard, and Bernheim on hysterical amaurosis, which agrees with that of Janet as to the facts. For a bibliography on the subject of hysterical defects of vision see E. B. Spaeth, "The differentiation of the ocular manifestations of hysteria and ocular malingering," *Arch. Ophthal.*, N.Y. (1930), IV, 911–38.

[3] Helge Lundholm, "An experimental study of functional anaesthesias as induced by suggestion in hypnosis," *J. Abnorm. (Soc.) Psychol.* (1928–9), XXIII, 337–55. This paper is summarized in his "A hormic theory of hallucinations," *Brit. J. med. Psychol.* (1932), XI, 269–82.

period as a result of suggestion given in the trance; (2) they did not involve a single eye; (3) they were produced for particular impressions, such as the lighting of a lamp, rather than for all visual impressions from one eye. Lundholm presents, in addition to his factual findings, a theory to account for such anaesthesias.

In my work five subjects, all good somnambulists, were used. None showed any genuine blindness when tested with adequate malingering tests, but they exhibited very interesting differences in their reactions to the suggestion of blindness. Three, *A*, *B*, and *C*, made no great efforts to deceive me; the fourth, *D*, was a rather active malingerer; the fifth, *E*, was so clever at malingering that for several months I believed that the phenomena in her case were not simulated. Other features of *E*'s case make it necessary to present its history in detail.

Subject *A*, a male student, agreed very readily that he could 'see nothing' out of one eye when the suggestion was given, and added that everything 'looked dark.' He was then asked to look into a stereoscope provided with a card with red and green discs for the demonstration of binocular rivalry. He reported an alternation of red and green, which showed that there was no blindness. When a red filter was placed over the supposedly good eye and he was told to read a card on which his name appeared in green and red letters, he read his whole name. (The red filter renders the red letters invisible.)

Subject *B*, a male, said that he continued to see objects around him quite clearly after the suggestion had been given. When he looked at an acuity chart with Snellen letters, he reported some blurring. In hypnosis, the visual acuity of his left eye was V1 + 2/10 — 2. After blindness had been suggested in that eye, he reported blurring, showed a good deal of hesitation in reading the test letters and made frequent mistakes. He began reading the largest letters, and his acuity seemed to improve gradually. Two and a half minutes after beginning to read his acuity was V1 — 2. There is no reason to believe that this alleged temporary blurring is genuine; the subject may have made voluntary accommodative changes so as to throw the letters out of focus.

C, a male student, could not be blinded by suggestion; objects were still seen out of the 'blind' eye. When asked to read the acuity chart ten times in succession with the 'blind' eye, the suggestion of uniocular blindness being given before each reading, he reported a very slight blurring during two readings. The blurring was not so great as to cause a measurable diminution of acuity. During this reading test, the 'blind' eye closed spontaneously three times, and *C* could not open it. At his request, I restored his ability to open it by suggestion.

D, a male student of architecture, reported a blurring of vision when the 'blind' eye was used. Objects were blurred in outline; the 'blind' eye gave an image "like that made with a soft-focus lens." When *D* looked into a

stereoscope, he reported binocular rivalry. When green was before the supposedly bad eye and red before the other, he said he saw red which alternated with grey. When the filter test (mentioned above in the account of *A*) was used, *D* passed it by suppressing the red letters. Some months after these first experiments, *D* was caught malingering in two different tests. *D*'s malingering will be discussed below in connection with malingering tests.

E is a girl who, like the other subjects, has a good knowledge of the fundamental facts of hypnosis I consider her the best subject of the group, since the phenomena produced in her trances are very striking. While in the trance she looks directly into my face all the time; if someone interposes some obstacle which cuts off her view, she moves so as to continue looking at me Her attitude is quite serious and one of the most painstaking obedience. Her amnesia for the events of the trance is so complete that I cannot single out particular happenings and make her remember them afterwards On one occasion my experiments were interrupted by a telephone call for her, she made an appointment over the telephone and was told that, upon waking, she would remember the conversation. When she was later told of the call, she was not able to recall or recognize it. On another occasion she received a telephone call shortly after being brought out of a trance, a few minutes thereafter she said, when I made some remark about the telephone conversation, that she had forgotten all about it I then rehypnotized her, and she recovered the memories of the conversation During the trance she develops, apparently spontaneously, an anaesthesia for the voices of other persons than me; this anaesthesia can be removed temporarily by suggestion While in the trance, she shows a definite change of mood, she is quite grave, even sad, and is unusually sensitive to any remarks which might possibly be construed as uncomplimentary to her. On one occasion I intended to compliment her on her appearance, saying, "You are looking pretty to-day." This statement, which normally would provoke no definite reaction, was interpreted as irony and as "making fun of her," and she began to cry. This is only one of several instances of abnormal sensitiveness. (*E* is normally slightly sensitive about her facial appearance, though she is considered rather attractive facially.) It should be emphasized that *E* in her normal state shows no tendencies which could be called neurotic; from an acquaintance of over two years, I can say that she is entirely normal

When *E* was told in the trance that one eye was blind, her reports indicated that the eye lost completely colour perception and acuity, while its light perception was unimpaired When placed within 2 ft of an oculist's acuity chart, she said she could see no letters whatever, but the brightness recorded by the 'blind' eye when an illuminated surface was viewed was the same as that by the normal eye. If coloured spectacles were put on, she said she could not tell the colour before the 'blind' eye. If objects, such

as the hand, were moved in its field, she reported a momentary brightening or flicker The pupillary reaction to light and the blinking of the lids in response to a sudden light or to feinting movements of my hands were apparently normal.

The following tests which were made on *E* are described in an order which, in general, reproduces the chronological order of the tests.

(1) *Tests with the Stereoscope.* *E* looked into a Holmes-Brewster stereoscope, which was clamped to an upright stand. Various stereograms were used, including some of the Titchener series. When one eye was 'blind' and both were kept open, *E* would describe only the field before the 'good' eye. Results were positive, *i.e.* indicating a functional blindness, from the very start. An assistant watched *E*'s eyes through the lenses of the stereoscope to be sure that she was keeping both eyes open. Binocular rivalry was apparently completely suppressed. *E*, with both eyes open, would look for five minutes and report nothing but the coloured disc which was before the 'good' eye.

As a control experiment with the stereoscope and binocular rivalry cards, *E* was told while in the trance with normal vision that she could name the colour that was before the left eye. The purpose of this experiment was to see if the subject had been malingering or not; if she could name the colour before one eye, then she must have had knowledge which would enable her to malinger, and the stereoscope tests would then be of no value. At the beginning of the experiment, *E* stated that such an idea was absurd, that she knew that she could not tell, except by a pure guess, what colour was before one eye in this situation. I insisted that she could, and tried to overcome this resistance. Various combinations of colours were used on the cards. In 100 trials *E* responded correctly in sixty-five cases. The result of each response was called out as right or wrong so that *E* could improve through knowledge of success and failure if possible. On a subsequent day *E* made only two mistakes in 100 trials. *E* stated that she did not know how she was able to respond correctly, that she "simply saw one of the colours first and reported it." Inspection of her eyes through the lenses of the stereoscope showed quite clearly that she was diverging her eyes slightly, which would have the effect of separating the two images. To respond correctly she had only to report the left-hand image, which she did within 1 or 2 sec. after the card was exposed. *E* had *apparently* acquired this ability gradually; this fact led me to believe that she had not possessed this ability when the original tests were made, and that the stereoscope experiments should be taken at their face value. This conclusion (erroneous, as will be seen later) was strengthened by the fact that I repeated a few binocular rivalry experiments, instructing *E* not to diverge her eyes or to use any other means to separate the images. The results were positive. I did not detect with certainty any eye movements of this sort. I now believe that my observation was faulty.

When *E*, in the trance, was told that she would be blind in one eye after she was brought out of the trance, she said, upon waking, "If you meant for my eye to be blind, the suggestion is not working, for I can see out of it. Everything looks blurred, however, just as if I had water in it." When asked to look into the stereoscope, she said that binocular rivalry occurred. A quantitative record was made, which showed that the colour before the 'blind' eye was delayed in making its first appearance (normally, it appeared within 2 sec.; with post-hypnotic 'blindness,' from 17 to 57 sec. after exposure), and when it did appear it was present only from one-third to one-fifth of the normal time. The data are remarkably consistent. *E* volunteered the information that when the colour before the 'blind' eye appeared, it at no time covered the whole disc (diameter 32 mm.). Such bits of volunteered information strengthened the impression that the results were genuine.

(2) *Perimetry.* First procedure: blindness in the right eye was suggested, and the limit of the left eye's field was determined with both eyes open and the left eye fixating the centre of the perimeter arm. Second procedure: normal vision was suggested, the right eye was covered up, and the limit was obtained as before. An assistant watched *E*'s eyes during the first procedure. On the first of three sittings, the perimeter arm was covered with grey paper so as to eliminate any landmarks which might be utilized by *E*. A 1° test object was used in all the perimetric work. Results for the first procedure were: The limit of the left eye's field was 54° when the object was moved outwards, 68° when moved inwards. When the right eye was covered (the second procedure), corresponding figures were 53° and 61°. Illumination on the perimeter arm was daylight. On repetition of the experiment some days later, corresponding results were: 54° and 60° for the first procedure, 56° and 59° for the second. When *E* was asked to guess (with normal vision, both eyes open) where the left eye's limit would be found, she guessed 44° (mean of ten guesses). Illumination on the perimeter arm was artificial in this sitting and the next. A Bausch and Lomb perimeter with a daylight lamp above the arm was used. The experiment was also done with the left eye 'blind.' The limits of the right field were 36° for the first procedure, 38° for the second. *E*'s guess as to the limit was 55°. These results are anomalous; the field should extend much further. At the time of this last sitting, I had begun to believe that *E* was malingering. In all of these measurements of the visual field sixty determinations of the limit were made and averaged in each procedure. The mean deviation for all sets of measurements does not exceed 2°.

(3) *Filter Experiments.* I wrote *E*'s name in red and green letters. I held a red filter before the 'good' eye and had her open both eyes and read what she saw. She read only the green letters. I then repeated the test, holding a green filter over her 'good' eye. She then read her whole name. This last test was especially convincing, since the green filter was

actually too light to render the green letters invisible, although it seemed to be about as deep in colour as the red filter. It seemed that if *E* were malingering she would have suppressed the green letters in this second test and thus have been trapped. No one could have told with certainty, in advance of a trial, that the green filter would not suppress the green letters.

(4) *Experiments with Flees's Box.* When the subject looks through two apertures into this box, the reflected images of two coloured discs are seen; mirrors are so arranged that the right-hand image is seen by the left eye, and *vice versa*, which is supposedly contrary to usual expectation. The box was devised for the detection of malingerers who claim loss of sight in one eye.[4] *E* reported only the disc on the side of the good eye. She was carefully watched to insure that both eyes were kept open and not blinked. Some months later the box was modified so that by pressing a lever two other mirrors could be brought into position inside the box which would reflect the discs but would not reverse the images. The tests with the unreversed images were also positive.

(5) *The Plotting of the Blind Spot.* The first attempt to plot the blind spot of one eye while the other was 'blind' and open gave negative results. The subject reported a disappearance of the test object at various places in the field, but the blind spot's area was very variable and the test object would disappear and reappear at parts of the field which I knew to be much above and below the blind spot. The first attempt was followed by a second one some days later, which gave excellent and consistent results which were quite close approximations to the actual size of the spot when the plane of projection was 1 m., 50 cm., and 25 cm. from the eye. Control of the eyes was adequate; no unusual blinking was noticed during the tests.

(6) *Ophthalmological Examination.*[5] Under homatropine, the refractive error of each eye was determined; the error of each was the same and was corrected by a spherical lens of 0.25 dioptre. The eyes were, then, practically emmetropic. Near points were: left eye, 10 cm.; right, 11 cm. Muscle balance (phorometer test), normal. Fundi, normal. Vision was not improved by any lens tried after blindness had been suggested in hypnosis.

(7) *Further Filter Tests.* After making the above tests, I was convinced that the blindness was genuine. However, at the suggestion of Dr. R. M. Dorcus, Johns Hopkins University, I undertook more experiments involving

[4] The plan of the box is given in a figure in Pierre Janet, *Major Symptoms of Hysteria*, p. 191. My experience with this box indicates that it is of very doubtful value when used with intelligent subjects. Three subjects (including *E*) were able to fake the test with the box as shown in Janet's plan, since they saw the images were reflected in mirrors and inferred that they must be reversed.

[5] I am grateful to Dr. Norma E. Israel, Houston, Texas, for her kindness in making these tests.

filters. I devised a more adequate malingering test involving filters. With a red filter over the 'good' eye and green over the 'blind' one, *E* was directed to read the letters appearing on a card. The appearance of a portion of a test card when both eyes are functioning is given in Fig. 1, upper line. The characters were written in nine different colours of pencil. Those rendered invisible by the red filter were: red, pink, orange, yellow. The others were: purple, blue, blue-green, apple green, green. The lower line (Fig. 1) shows how the line should appear through the red filter. This test is a great improvement over the older one in which only two colours, red and green, were used and the letters were written entirely in one colour and possessed no common lines In my test a letter, visible through the red filter, was usually composed of lines made with several different colours. When *E* was given this test, there was no evidence that the 'blind' eye's functions had been impaired to the slightest degree. The results of all former tests were thus invalidated.

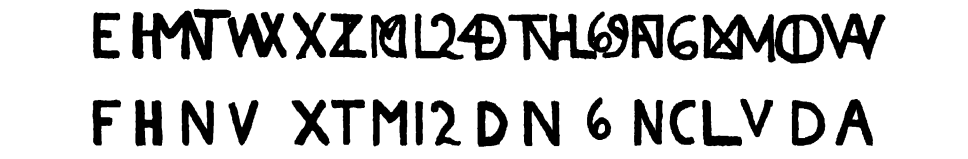


Fig. 1

The day before I gave these final filter tests to *E*, I called in *D* for the same tests. He was directed to look through two 2-inch square glass-mounted filters which he held in his hand. (In *E*'s case, the filters were used in a goggle-like device, which insured that the filters could not be moved.) I caught him malingering: he moved the filters slightly to one side and looked through the red filter with both eyes. When I corrected this, he failed on the test He was also caught on the modified Flees's box; when the images were not reversed, he suppressed the wrong one. He was caught in a third way by having him view, with a green filter before his good eye, his own name written in green and pink letters. He suppressed the pink letters, but when I questioned him further he admitted seeing them. *D* was thus shown in three ways to be malingering.

Perhaps it will be instructive to give some of the considerations, in addition to *E*'s general demeanour during the experimentation, which strengthened my impression that her blindness was genuine. (1) The fact that *B* and *C* were not malingering, in that they reported that they could see objects quite clearly, made it seem reasonable to suppose that *E* was also not malingering but was exhibiting genuine blindness simply because *she was a better subject than the others and hence more influenced by* suggestion. (2) *E* reported an unimpaired light perception. *I asked myself,* "If she is lying about her blindness, then why does she still admit seeing

light?" It would have been just as easy to lie about other aspects of vision as about acuity. (3) I had the naïve idea that subjects under hypnosis carry out all instructions given unless the instructions are contrary to their moral principles or well established tendencies. I thought that, since heightened suggestibility is the chief characteristic of hypnosis, the subjects would naturally be highly suggestible and therefore perfectly obedient to such orders as to keep both eyes open, etc. (4) I thought that my control experiments (*e.g.* with the stereoscope, perimeter, etc.) were valid controls, whereas they were not. For example, *E*, with both eyes open, indicated that the boundary of the right eye's field was 36°. I then covered up the left eye and thought that I could obtain the actual physiological limit of this field. I did not get the actual limit, since the subject in the first procedure had been malingering and continued to do so in the second procedure in order to sustain the appearance of genuine blindness. In other words, she "lied and stuck to it." The control experiments could not have preceded those with suggested blindness—at least not by any short interval of time--since in that event the subject would have acquired the knowledge necessary for later malingering. Probably the best plan would have been to make the control experiments afterwards in the normal state, but there is some reason for believing (see later parts of this paper) that even in that event the subject might malinger so as to make the latter tests agree with the trance tests.

A few days after *E*'s simulation had been detected, she was hypnotized in order to find out the methods she had used in her malingering. I first asked her if she had been conscious of faking any tests; she said no. When I asked if she believed that her eye had been actually blind, she said, "It *was* blind." She gave no answer when asked what she thought of the latest filter experiments. I then fastened the two filters over her eyes, suggested uniocular blindness, and asked her to read. She made unsucessful attempts to sham blindness, suppressing certain letters which should have been visible and incorrectly reading others. I asked, "These experiments show that your eye is not blind, don't they?" She said, "I suppose it isn't if you think so. But it *is*. I will say that if you want me to say it, but I can't see out of it." I then told her, as I stroked her forehead, that I was going to hypnotize her more deeply and get in touch with that part of her which faked the tests. I then got from her, with a great deal of difficulty, information as to her methods. Questions and answers were recorded stenographically. She at first stated that she did not know her methods, that she could not remember. I persuaded her to remember, recovering a little bit at a time, but evidently a very great conflict was going on; she clenched her fists, tossed about in the chair, and showed a great deal of agitation in her vocal and facial expressions. She would begin a sentence and stop after saying two or three words, saying that she could remember no more. I would then tell her that the memories which she was trying to recall would come back when I counted three

and snapped my fingers. This method was usually quite successful, bringing out a rush of words as soon as the signal was given. Then more resistance was encountered. She began crying at one point and continued to be tearful, in spite of my efforts to quiet her, for ten or more minutes.

In describing her methods, she said that in the stereoscope tests, the two images were separated momentarily "just a second after exposure." This gave her the necessary knowledge for faking. I next brought up the blind spot plotting. She said that she was able to do that "because I must have known . . . ," that she could not remember exactly how she did it, that it seemed that she had plotted it in her laboratory work sometime in the past (which was not the case). She showed signs of great agitation and began to cry. I then thought it best to leave this subject and return to it later. I then asked about the perimeter tests. She continued to be emotionally worked up, putting her head on the arm of the chair and beginning to cry with renewed force. I asked why she was crying; she said, "I don't know. It is something I can't remember." After a few moments of further crying, tossing about, and clenching her fists, she said suddenly that the memories had come back, that she had practised on the blind spot at home after the first attempt to plot it; that she had called in a girl, *H*, to help her by holding a black velvet jacket against the wall; that in this way she had found out just where the spot ought to be. (*H* confirms this account.) At the time, she could not understand why she was doing this work and thought that perhaps she was becoming more interested in psychology. After this 'home-work,' she had forgotten all about it.

Her reactions in the perimeter experiment were based on her knowledge as to the approximate location of the field boundaries. No 'home-work' on the perimeter was done, and she complied perfectly with instructions to keep both eyes open. About Flees's box with crossed images she said, "I saw there were mirrors in there, and I figured somehow that the one on the left was supposed to be seen with the right eye, or else it would be no test, and that it would just be a stupid person who would think any differently." When the images were later uncrossed, she said that, in spite of the fact that I was watching her eyes, she blinked one quickly and thus got the necessary knowledge. When she was being examined by the physician, she knew all the time that she could see, but since I had said that she could not, she acted as if she did not. "You said, 'you are blind in that eye' and that is what I said, but something else inside said, 'you are not.' " The first filter test was worked correctly because she knew that "red through red won't show." I did not get a satisfactory account of her method of faking the test with the green filter which rendered no letters invisible; she stated that she knew how to do it, and I learned nothing more. I asked why, if she had been malingering, she did not state that she was unable to see light. She said, "I remember thinking that if an eye were blind, it could still see light."

Near the beginning of the sitting, after I had begun to get some information from *E* against great resistance, I asked, "Are you ashamed to tell your methods of faking?" and she answered no. I then asked why she had shown so much resistance in talking about them, and she answered, "Because I can't remember." Later, I asked, "Do you feel humiliation in giving these reports?" She said, "Yes, something does, and something doesn't. I want to tell the truth, and I know it, and something doesn't want to. Something makes me keep forgetting it, and I know I know it. It just goes, and I can't say it, and it makes my head ache and swim."

After finding out how she had done work at home on the blind spot, and after she had stated that she had had no memory of it in her normal waking state, I told her that upon awakening she would remember it. When she came out of the trance, I mentioned the work at home, and she added some other details and remarked that she had previously forgotten all about it. The emotional disturbance manifest in the trance, which lasted about 45 min., left traces in *E* after waking. She then complained of dizziness, faintness, 'swimming movements' of objects around her (though her eyes were perfectly steady), and headache. In addition, she expressed some apprehension about her condition. Within 15 min. she was normal except for the headache, which persisted for about an hour. Such after-effects had never appeared prior to this occasion. I wanted to hypnotize *E* on a later occasion to follow up some features of the case, but she declined to allow it, on account of the unpleasant after-effects which followed the last trance.

I believe that this case demands interpretation according to the principles established by the work of Pierre Janet and Morton Prince. The suggestion of blindness produced a conflict between two sets of tendencies: the first set was to believe that the eye was actually blind and to obey instructions carefully, the second set was to know that the eye was really normal and to malinger, utilizing knowledge acquired either previously or during the process of malingering. During the tests, the first set was dominant and was a part of the personality which was in communication with me, but the second set of tendencies was nevertheless controlling *E*'s behaviour subconsciously. *E* was apparently not aware of the malingering tendencies at the time of the tests, nor could she recall them to memory until the occasion of the last trance.

These tendencies to malinger were repressed and dissociated. This statement is based upon the following facts:

(1) *E*, at the beginning of the last sitting, refused to accept the evidence that her eye was not blind.

(2) She only gradually and with a considerable show of resistance acquired, or appeared to acquire, the ability to discover what colour was before a given eye in the stereoscope, though she had been using this knowledge for a long time previously.

(3) After acquiring the ability to diverge her eyes in this situation she said that she did not know how she was able to name the colour.

(4) She showed extreme resistance to recalling the memories of her methods of faking and stated that she had great difficulty in remembering.

(5) She herself describes a condition of amnesia and dissociation. (One of her statements, that describing the physician's examination, tends to indicate that she was conscious of both sets of tendencies at the same time; but it is my belief that this statement, which was made rather late in the trance, after the subject had become relatively calm and the signs of conflict and amnesia had almost disappeared, may possibly represent the subject's condition after the memories belonging to the malingering tendencies had been merged with the rest of the personality.)

(6) Further, and here is perhaps the best evidence for dissociation, the malingering tendencies interrupted the normal waking personality temporarily in order to obtain knowledge of the blind spot, while the normal personality knew nothing of the motive of the action and immediately thereafter had no memory of it.

Since the malingering integrate could thus interrupt the waking life, it seems possible that it might again emerge on the occasion of later control experiments in the normal state and modify the results so as to sustain the appearance of a genuine anaesthesia. Perhaps this possibility should be considered in experiments of this type.[6] If the subject later should exhibit amnesia for the control experiments, that would be evidence of such an emergence of the malingering tendencies.

My interpretation of these experiments is, I think, in complete harmony with Lundholm's theory of anaesthesia for particular impressions. They cast great doubt on the possibility of producing by suggestion such an interruption of functional continuity in the nervous system as will produce blindness. They suggest also that the same dissociated conative processes involved in *E*'s 'blindness' may be active in other forms of hypnotically induced anaesthesia.[7]

2

The Role of Expectancy in the Performance of Posthypnotic Behavior[1]



Seymour Fisher

Despite a wealth of anecdotal material and case reports, there have been few experimental investigations of the performance of posthypnotic behavior. Aside from an important contribution by Erickson and Erickson (3) and several studies dealing with the duration of posthypnotic suggestions summarized in Weitzenhoffer's paper (8), the major variables remain essentially unexplored.

The purpose of the present communication is to report the results and implications of a simple, but relatively well-controlled, experiment on posthypnotic suggestion. The primary variable under investigation was the nature of the setting in which the suggestion was carried out, and an attempt was made to manipulate the subject's (*S*'s) expectancies *after* the termination of the formal hypnotic state. Thus, the general hypothesis being tested is that successful performance of a posthypnotic act is not only a function of the specific suggestions given *under* hypnosis, but is also contingent upon the *S*'s subsequent expectations.

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Method

Subjects

A total of 13 Ss was employed in this study. All were capable of attaining either a medium or deep hypnotic state, and all had previously shown that they could respond to simple posthypnotic suggestions. Twelve Ss were males who had earlier participated in a separate hypnotic experiment; the thirteenth *S* was a high school girl who had had only a few hours of hypnotic experience prior to this experiment.

Procedure

While under hypnosis each S was given the following posthypnotic suggestion, which was generally repeated two or three times:

"Now listen carefully. After I awaken you, you'll notice a very interesting thing occurring. Every time you hear the word 'psychology' you'll reach up and scratch your right ear. You will be wide awake, and aware of everything that's going on, but each time the word 'psychology' is mentioned, you'll feel compelled to scratch your right ear. Do you understand that clearly?"

During the administration of the suggestion S was alone in the room with the hypnotist (hereafter referred to as E_1). At the conclusion of the suggestion, S was awakened and the experiment proceeded as follows:

PERIOD 1

One or more experimenters (associates of the hypnotist who were collaborating in the study) entered the room and were introduced to S. A general discussion ensued which included S, E_1, and whoever else was present. Each of the various *E*s managed to weave into the conversation the word "psychology" a number of times (a minimum of five), and also attempted, by means of indirect questioning, to get S himself to say the word. While the discussion was carried on in a friendly, informal, nonexperimental atmosphere, it was apparent at all times that the *E*s were taking note of *S*'s ear-scratching behavior.

PERIOD 2

After the discussion had gone on about ten minutes, an attempt was made to alter inconspicuously the nature of the situation. The other *E*s temporarily dropped out of the conversation, and E_1 began to chat with *S* about the posthypnotic suggestion which had been given him under hypnosis. The ancillary *E*s soon joined in this discussion, and during the next five or ten minutes every effort was made to create and sustain the impression that the "experiment" was completed (i.e., that the *E*s had satisfactorily witnessed the effects of the posthypnotic suggestion, and were now no longer interested in ear-scratching behavior per se). Throughout this period, however, the

stimulus word "psychology" was again mentioned by all the *E*s on numerous occasions.

In order to clarify the technique used during Period 2, the following is a truncated account of the conversation with one *S*:

E_1: Have you noticed anything unusual during the past few minutes Jim?"

S: "Why yes, I've been scratching my ear every once in a while."

E_1: "Uh-huh, as you may have guessed, you were responding to a post-hypnotic suggestion I gave you earlier. Did you notice *when* you were scratching your ear?"

S: "It seems like it was to a word or something."

E_1: "That's right. I had given you the suggestion that every time you heard the word 'psychology' you would scratch your ear. How did you feel the first time you heard the word 'psychology'?"

S: "Well, I just found my hand reaching up."

E_1: "Yes, posthypnotic suggestions work that way. All that's necessary is to tell you while you're in hypnosis that you'll scratch your ear whenever you hear the word 'psychology,' and sure enough, you find yourself doing it."

The conversation then continued along the same lines with the other *E*s joining in.

PERIOD 3

As an additional control, E_1 now endeavored to restructure *S*'s expectancies by intimating that the experiment was still in progress. The hypnotist informed *S* that he was going to rehypnotize him and remove the suggestion:

"All right, Jim, in a few moments I'm going to hypnotize you once again and remove the suggestion I gave you. I'm sure you wouldn't want to go around scratching your ear indefinitely. Before I put you back in hypnosis, though, I was just wondering . . . do you remember the name of the last psychology book you bought?"

The other *E*s in the room then presented the stimulus word a few times (both in sentence form and as a single, isolated word), and finally *S* was directly requested to say the word himself. Regardless of whether or not he responded to the stimulus, *S* was subsequently rehypnotized and the suggestion was permanently removed.

At a later date, ranging from one day to a week, those *S*s who failed to respond during Period 2 were interviewed individually by E_1 alone. In this interview interest was focused upon *S*'s attempts to account for the differences in behavior between Periods 1 and 2.

Results

Table 1 records the presence (+) or absence (—) of the ear-scratching behavior in response to the stimulus word "psychology" as presented by E_1 during the three periods of the experiment. As was readily expected, all thirteen *S*s responded positively during Period 1.[2] Under the altered

[2] Although most *S*s were completely consistent in either responding or not responding during any given period, two *S*s during Period 1 missed the cue on single occasions.

conditions of Period 2, however, nine *S*s completely stopped responding; two *S*s (Bu and Bl) continued to respond in the same manner as they did in Period 1; and one *S* (Me) confused the issue considerably by keeping her hand against her ear throughout the second period, making it difficult to determine whether or not she was responding. One *S* (He) failed to respond in Period 2 the first three times the stimulus word was mentioned by E_1, but then abruptly resumed the response and continued for the remainder of the period.

TABLE 1

PRESENCE (+) OR ABSENCE (−) OF A POSTHYPNOTIC RESPONSE OF EAR SCRATCHING TO HYPNOTIST'S PRESENTATION OF STIMULUS WORD

Subject	*Period 1*	*Period 2*	*Period 3*
Co	+	−	+
Pa	+	−	+
Ho	+	−	−
Ro	+	−	+
He	+	*	+
Mo	+	−	+
La	+	−	+
Bl	+	+	+
Bu	+	+	+
Wa	+	−	+
Ld	+	−	+
Me	+	†	+
Ha	+	−	−

* This *S* failed to respond the first three times the stimulus word was presented, and then suddenly began to respond

† This *S* held her hand against her ear throughout the second period

Table 1 further indicates that, in Period 3, seven of the nine *S*s who ceased responding in Period 2 reverted to the ear-scratching behavior in the absence of any intervening formal hypnosis

Of particular interest are the data pertaining to the variability in response consistency. That the instructions were interpreted individualistically by different *S*s is clearly seen in an examination of Table 2. While all the *S*s without exception responded in Period 1 when the stimulus word originated from E_1, four *S*s did not respond when they themselves uttered the word; two of these four, moreover, failed to respond when any of the ancillary *E*s presented the cue Table 2 shows that five *S*s could not be induced to say the word "psychology," and it is noteworthy that all *S*s manifested a decided reluctance to say the word

One of the most striking findings was obtained in the postexperimental interview when the *S*s were confronted with the fact that they had stopped scratching their ear during Period 2. Of the nine *S*s interviewed, two (Co and Ro) offered elaborate "rationalizations": one said he noticed his ear itching severely each time the word was mentioned, but could not scratch it because his hands were in his pockets (which was untrue); the

TABLE 2

PRESENCE (+) OR ABSENCE (−) OF A POSTHYPNOTIC RESPONSE OF EAR SCRATCHING RELATIVE TO THE SOURCE OF STIMULATION DURING PERIOD 1

	Source of Stimulation		
Subject	E_1	*Other Experimenters*	*Self**
Co	+	+	−
Pa	+	+	?
Ho	+	−	−
Ro	+	+	?
He	+	+	+
Mo	+	+	+
Ea	+	+	−
Bl	+	+	?
Bu	+	−	−
Wa	+	+	+
Ed	+	+	+
Mc	+	+	?
Ha	+	+	?

* A question mark (?) indicates that *S* could not be induced to say the stimulus word

other claimed he was unable to respond because he had a book in his hands at the time (equally untrue). The remaining seven *S*s insisted they did not hear the word mentioned during Period 2!

Discussion

Nature of Posthypnotic Behavior

A comparison of the behavior in the three experimental periods strongly suggests that the performance of a posthypnotic suggestion is a function of *S*'s understanding of the hypnotist's expectations—not only when the suggestion is given during the formal hypnotic state, but also in the process of enacting the suggestion. In Period 1 *S*s responded each time the signal was perceived, and it may be safely assumed that this behavior would have continued if the hypnotist had not restructured the situation in Period 2. Although *S* was allegedly "wide awake," obviously some aspect of the hypnotist's behavior affected *S*'s posthypnotic behavior. To the extent that the hypnotist was successful in manipulating the experimental periods, it seems reasonable to assume that *S*s who failed to respond in Period 2 were led to believe that the ear-scratching behavior was no longer expected. While the actual suggestion stipulated nothing about the termination of the behavior, and specifically directed *S* to respond *every* time the word was mentioned, the majority of the *S*s were, so to speak, "caught

off guard." When the hypnotist implied at the beginning of Period 3, however, that the suggestion was supposed to be still operative, *S*s tended to revert to the posthypnotic act.

The fact that a posthypnotic suggestion is carried out only in a specific context has never been sufficiently recognized in the literature. Indeed, it has been generally implied that, however unexpectedly a posthypnotic signal may arise, the good *S* finds himself responding (1, 4, 6).

A number of studies indicate that when an *S* is given a posthypnotic suggestion without a terminal cue (i.e., indicating when *S* should stop responding), the behavior tends eventually to cease as a function of time (e.g., 5, 7). That this behavior, however, can be "turned off and on" by controlling *S*'s expectations in the subsequent "waking" state seems to be a hitherto unrecognized phenomenon which refocuses the entire problem of posthypnotic suggestion. In effect, the question may be posed: Is *S* in some form of hypnotic state during the *total* time that he is prepared to respond post-hypnotically, even when the behavior extends over a period of days without any intervening formal hypnosis? The answer to this question is certainly not a simple one, but will be touched on very briefly here.

Erickson and Erickson (3) have elaborated on Moll's earlier observation (6) that *S* frequently appears to pass into a spontaneous hypnotic state immediately preceding the suggested posthypnotic act; this spontaneous state terminates as soon as the behavior is completed, and *S* resumes his "normal" activity. The specific manifestations of the state are thoroughly described by the Ericksons, who also point out that this new state of hypnosis can be most clearly demonstrated by propitiously interrupting *S* in the process of performing the posthypnotic act. *S* will now heed the hypnotist's suggestions once again, although both before and after the response it is claimed that *S* is no more suggestible to the hypnotist's requests than is a nonhypnotic *S*.

In the present study the manifestations of the spontaneous self-limited state were clearly observed, but only on each occasion when *S* began to reach up to scratch his ear. That is, during the greater part of the interaction between *S* and *E*s there were no indications of any hypnotic-like state, whenever the stimulus word was effective, however, the new hypnotic

state became momentarily evident until *S* finished scratching his ear. Now if it is assumed that *S*s were "wide awake and normal" in between the ear-scratching responses, then it is difficult to see why the behavior changed in Periods 2 and 3. When the hypnotist restructured the setting at the beginning of Period 2, there were no indications of a hypnotic state at that moment; and certainly when *S*s resumed the ear-scratching behavior in Period 3, no formal hypnosis was instigated

The results of this study suggest, rather, the view that during the entire time *S* remained in the setting after being told to awaken, a certain degree of rapport existed between him and the hypnotist. This rapport was quite specific, it appears, in the sense that *S* continued to be concerned about the hypnotist's expectations regarding the posthypnotic behavior previously suggested. In no other way did he appear hypersuggestible

This concern over the hypnotist's expectations is further seen in the denial behavior observed during the postexperimental interview with the hypnotist. Although the tendency for hypnotic *S*s to rationalize a posthypnotic suggestion is commonplace, it appears that a hypnotic *S* is equally prone to rationalize his *lack* of posthypnotic behavior—particularly if he believes he has failed to live up to the hypnotist's expectations.[5] Moreover, when one considers the fact that these denials and rationalizations were obtained from some *S*s as long as one week after the last formal hypnotic session, it becomes apparent that the line of demarcation between termination of hypnosis and "normal waking behavior" is a hazy one indeed Some form of rapport seems to persist between *S* and the hypnotist since the defense mechanisms manifested by *S*s reflect a degree of ego involvement which would not be expected in the absence of a strong (hypnotic?) relationship. One rather obvious question comes to mind. Does *S* ever completely resume his prehypnotic, "normal" state, where he is no longer affected by the hypnotist? A promising area of research might deal with the type and duration of the subject-hypnotist relationship after conclusion of formal hypnotic sessions

Interpretation as a Function of Expectancy

In a paper by Erickson (2) it is claimed that the hypnotic *S* interprets the hypnotist's suggestions in a concrete, literal manner. The present data are clearly not in line with her contention, since *S*s do not attach any literal meaning to the phrase "every time the word 'psychology' is mentioned." Instead, it would seem that whatever interpretation is given to the explicit suggestion depends upon what *S* believes the hypnotist intended.

[5] By implication, it follows that introspective reports of *S*s who have been used in hypnotic experimentation may be of dubious validity and should be interpreted with extreme caution

It will be recalled that when the suggestion was presented during hypnosis, *S*s did not know that additional people were to be later introduced. In Period 1, after *S* is awakened, it is almost as though he has to decide "does he (the hypnotist) expect me to respond to these people also?" The fact that eleven out of the thirteen *S*s did respond to the ancillary *E*s may possibly be explained by noting that these *E*s were presented to *S*s by the hypnotist and might thus be considered as "associates." The prediction could be made that if the hypnotist ignored, or in some way appeared antagonistic toward, the other *E*s, fewer *S*s would respond to them as a source of stimulation.

Similarly, it seems doubtful whether it occurred to *S*s during the formal hypnosis (when they were given the posthypnotic suggestion) that they themselves might be asked to present the stimulus word. The peculiar difficulty in getting *S*s to say the word "psychology" during Period 1 cannot be readily accounted for by the present data, but is consistent with the possibility that *S*s were so uncertain as to the hypnotist's expectations on this score that they were reluctant to have to commit themselves one way or the other. This phenomenon is an interesting one, and warrants further research.

Summary and Conclusions

The primary purpose of this study was to investigate the extent to which the effective enactment of a posthypnotic suggestion is dependent upon the nature of the setting in which the suggestion is carried out. On the basis of data obtained from thirteen hypnotic *S*s, the results were as follows: (*a*) The continued performance of a posthypnotic suggestion is a function of *S*'s belief that the hypnotist expects the behavior to occur; i.e., if *S* is "caught off guard," the posthypnotic behavior tends to disappear. However, additional manipulation of the situation by the hypnotist can reinstate the behavior in the absence of any further formal hypnotic suggestion. (*b*) The hypnotic *S* does not usually tend to interpret the hypnotist's suggestions in a concrete, literal manner, but rather, the eventual meaning appears to be determined by *S*'s inferences as to the hypnotist's expectations. (*c*) An incidental finding of some interest indicates that *S*s who are "tricked" into a lapse of carrying out a posthypnotic suggestion seem to find it necessary to "save face," either by a complete denial of their "negligence" or by a more elaborate form of rationalization. The tendency for hypnotic *S*s to rationalize their posthypnotic behavior is well-established in the literature; it appears, however, that hypnotic *S*s are equally capable of rationalizing their *lack* of posthypnotic behavior.

The results suggest that when an *S* is carrying out a repetitive posthypnotic suggestion over an extended period of time, a certain degree of

rapport continues to exist between him and the hypnotist. This rapport is evidenced by the *S*'s unceasing concern over the hypnotist's expectations in regard to the previously suggested posthypnotic behavior.

3

The Nature of Hypnosis: Artifact and Essence[1]



Martin T. Orne

The most meaningful present-day theories of hypnosis interpret hypnotic phenomena along three major lines: (*a*) desire on the part of the subject to play the role of a hypnotized subject (Sarbin, 1950, White, 1941), (*b*) increase in suggestibility (Hull, 1933), and (*c*) a further less well-defined category that is called by White "an altered state of consciousness" and by others, "cortical inhibition" (Pavlov, 1923), dissociation (Weitzenhoffer, 1953), etc depending on their theoretical orientations.

The heuristic model of hypnosis that underlies this paper incorporates these three aspects One of the hypotheses of the paper holds that much hypnotic behavior results from the subject's conception of the role of the hypnotic subject as determined by past experience and learning, and by explicit and implicit cues provided by the hypnotist and the situation.

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These varied role conceptions appear to be the source of most if not all of the inconstant patterns of behavior seen in the hypnotic state.

An increase in suggestibility may be viewed as an increase in motivation to conform to the wishes of the hypnotist. A second basic hypothesis to be tested thus proposes that, although increased motivation may be a constant accompaniment of the trance state, such increased motivation is by no means a phenomenon unique to hypnosis but can be seen to operate in other experimental and life situations with equal force.

By experimentally controlling these two elements, role-playing and increased motivation, it is possible to investigate their sufficiency for explaining all aspects of the trance state and the extent to which still other concepts, such as an altered state of consciousness, are required.

The third aspect of hypnosis, the altered state of consciousness, presents the greatest problem for investigation, yet it has been felt necessary to include the concept in all attempts to explain the phenomenon. This residual

TABLE 1

SCHEMATIC REPRESENTATION OF A WORKING MODEL OF HYPNOSIS

Situation of Trance Induction	*"Role-Play Artifact" (cognitive component)*	+ *"Increased Motivation Artifact" (conative component)*	+ *Essence of Trance*
Creation of situation to maximize: 1. Desirability of entering trance 2. Expectation that trance can be achieved 3. Respect and trust for operator 4. Restriction of extraneous stimuli 5. Focusing of attention All techniques have the further qualities of: 1. Concrete suggestions in vivid simple language 2. "Suggestions" utilizing the perception of subjective events as their basis 3. Suggestions of gradually increasing difficulty to insure successful responses 4. Praising (rewarding) explicitly or implicitly the subject's positive responses	1 Expectations of *S*s a. preconceptions b. cues from trance induction 2. Cues from Experimenter a. explicit b. implicit 3. Cues from experimental situation	The sources of increased motivation are not defined They represent a major area of future inquiry Probably some aspects will prove to be a component of "essence"	Uncertain

aspect, which remains after increased motivation and role-playing are accounted for, may be regarded as the "essence" of hypnosis, with reference to which increased motivation and role-playing appear as artifacts.

Three related experiments are presented. The first is devoted to the effects of "role-play artifact" on the manifestations of hypnosis commonly seen clinically. It demonstrates that much of the complex phenomenon which we call hypnosis may result from (*a*) the subject's preconceptions of what hypnosis is, (*b*) implicit cues by the hypnotist as to what he thinks it should be and (*c*) the particular techniques of trance induction. The second experiment demonstrates an aspect of role-play artifact that is introduced by a concrete experimental situation. It investigates cues that an experimental design may give about the role the subject is expected to play and demonstrates that in some instances an experimental result may more reasonably be accounted for on this basis than by invoking "trance effects." The third experiment is concerned with the effect of "motivation artifact" upon performance. It examines the claims of increased physical capacity in hypnosis and tests the hypothesis that this may be accounted for by increased motivation.

Table 1 gives a schematic representation of the author's working model of the hypnotic state.

Preconceptions of Hypnosis and Their Effect on Trance Manifestations

The states induced by Mesmer (Binet & Féré, 1888; Boring, 1950), Coué (1922, p. 83), Wells (1923), Schilder (1956), and others are all hypnosis, yet their descriptions of how hypnosis characteristically manifests itself are very different. The common characteristics of these varied states that bring them all under the heading of "hypnosis" would appear to include: posthypnotic amnesia, apparent inability to use a given motor system when a functional paralysis is suggested, various sensory illusions including positive and negative hallucinations of all sensory modalities, apparent memory disturbances or improvements as well as reported increased control over autonomic nervous system functions. Whether all of these phenomena are necessarily part of hypnotic behavior will be discussed below. In any event, hypnosis is evidently characterized by the ability of the subject (*S*) in this special state to experience changes that are not normally found in response to similar cues in everyday life.

What, then, determines the particular trance manifestations that an *S* shows on entering hypnosis? In terms of the model presented here, the answer may lie in role-play artifact. From this viewpoint, *S*s who enter trance are motivated to play the role of the hypnotized *S*, and the precise manifestations of this role depend upon their perception of what it entails.

Behavior of the *S* in trance is then determined by the *S*'s preconceptions about how a hypnotic *S* acts, and the cues, both explicit and implicit, as to the desired behavior which the hypnotist communicates in the process of trance induction.

To test this hypothesis that conceptions about hypnosis held prior to entering the hypnotic state affect an *S*'s trance behavior, a pilot study and a main experiment were conducted in which volunteer *S*s were given the erroneous prior impression that catalepsy of the dominant hand (with the other hand flaccid) is a typical feature of hypnosis. This behavioral item was chosen because it satisfied a number of criteria. It is sufficiently unusual to have been reported had it ever been observed as a spontaneous characteristic of hypnosis; it is easily recognizable so that judgments of its presence or absence are unequivocal; and it is sufficientiy plausible as a characteristic associated with hypnosis that it would be accepted as such by the *S* population.

Especial care was exercised to eliminate possible effects of the bias of the experimenter by making it impossible for him to influence the results. It is easy to suggest to an *S* by implicit cues that he manifest catalepsy as part of the hypnotic state. Perhaps catalepsy of one hand might also be suggested during induction of the trance. Selection of catalepsy of the *dominant* hand avoids this possibility, as the experimenter had no way of knowing whether the subject was right- or left-handed until he asked for this information after the data on catalepsy had been gathered.

Pilot Study

An introductory psychology class at the Massachusetts Institute of Technology was given a lecture on hypnosis. Prior to the lecture, and without the knowledge of the class, two students had been hypnotized and given the posthypnotic suggestion that upon entering the trance subsequently, they would manifest catalepsy of one hand, the dominant hand. One student was right-handed and one student was left-handed. The class was then given a 25-minute lecture on the nature of the hypnotic state, at which point volunteers were called for in order to demonstrate the phenomenon. Of the 11 students who volunteered, the two who had been previously hypnotized were selected in a fashion that appeared random. They were again placed in trance, in a manner that appeared to be the initial trance induction, and simple trance phenomena were demonstrated, including one-handed catalepsy. Attention was called to the fact that the right-handed student had catalepsy of the right hand, and the left-handed student had catalepsy of the left hand. Immediately following this procedure, three more students from the same group of volunteers, who had not been hypnotized previously, were placed in trance.

A class of psychology students at Harvard were subsequently given the same kind of a lecture and demonstration, following which four *S*s were hypnotized and tested for one-handed catalepsy

All three of the M I T experimental *S*s gave good trance results, and all showed catalepsy of the dominant hand One *S* was left-handed. Of the four Harvard students who were hypnotized immediately after observing three demonstration *S*s with catalepsy of the dominant hand, three manifested catalepsy of the dominant hand and one, catalepsy of both hands All *S*s were right-handed

Main Study

In order to make it impossible for the experimenter to communicate his desire that the S demonstrate unilateral catalepsy the main study was performed in a rigorous "blind" fashion In this instance matched classes were used, each of which had received a lecture and demonstration of hypnosis In one class the hypnotic demonstration included catalepsy of the dominant hand while in the other this was omitted The *S*s were then tested in small groups with members of both groups mixed randomly The experimenter thus had no way of knowing which subjects should manifest one-handed catalepsy

PROCEDURE

The procedure of the pilot experiment was repeated with members of the introductory psychology course at Boston University with the inclusion of the control group Instead of asking for volunteers, three *S*s were employed who were introduced to the class as having taken part in prior research The same three *S*s were used for both sections of the course, to which essentially identical lectures were given The demonstrations differed only in that in one section the three *S*s manifested unilateral catalepsy, while in the other section this was not demonstrated No students from either class were hypnotized at that time Volunteers were solicited and subsequently tested in such a way that the experimenter had no way of telling which lecture they had attended until after the completion of the experiment[2] All but two *S*s were tested by an experimenter who was not at the lectures

Trance depth was rated by the experimenter and an observer The degree of consensus was high and in no case was there more than a one point difference In case of disagreement both ratings are recorded The ratings are rough clinical estimates based on the phenomena which could be elicited from the *S*s A rating of 1 indicated no response, 2 implied eye-closure and only partial hand levitation without a positive response to "challenge" suggestions, i.e., you cannot open your eyes, or your cannot bend your elbow, 3 referred to positive responses to all challenge suggestions but inability to achieve hallucinations or posthypnotic phenomena, 4 was used to denote those *S*s who responded to suggested hallucinations,

[2] One of these *S*s was tested the evening of the lecture The remaining *S*s were tested approximately one month after the lecture

TABLE 2

TRANCE BEHAVIOR IN THE EXPERIMENTAL AND CONTROL GROUPS

Subject	Catalepsy R.	Catalepsy L.	Trance Depth	Dominant Hand
Experimental group				
1. M.S.	+	0	4	R.
2. M.K.	+	+	4	R.
3. R.L.	+	0	4	R.
4. C.L.	0	0	2	R.
5. S.T.	0	0	3	R.
6. A.L.	0	+	3	L.
7. O.B.	+	0	3	R.
8. S.R.	+	+	5	R.
9. B.T.	+	0	4	R.[a,b]
Control group				
1. D.L.	0	0	4	R.
2. W.O.	0	0	4	R.
3. M.R.	+	+	3	R.
4. L.P.	+	+	3	L.
5. B.Z.	0	0	3	R.
6. L.V.	0	0	4 5	R.
7. M.O.	+	+	3	R.
8. A.T.	0	0	3	L.[b]
9. W.M.	0	0	1 2	R.

[a] This *S* was tested the evening of the lecture when he appeared unannounced along with a group of *S*s who had previously volunteered. The experimenter did not know which class the *S* had attended until after the experiment was over.

[b] *S*s tested by author. I was not aware of which class these *S*s had attended, in fact I did not know until subsequently that they had been at the lectures.

gave simple posthypnotic phenomena, but did not achieve a good posthypnotic amnesia; 5 referred to "somnambulists" who could achieve all hypnotic phenomena easily, including complete amnesia.

RESULTS

Of the nine *S*s in the experimental group, five showed catalepsy of the dominant hand. Two showed catalepsy of both hands, and two showed no catalepsy. None of the control group showed catalepsy of the dominant hand, but three out of the nine *S*s showed catalepsy of both hands. Table 2 gives a summary of the findings.

DISCUSSION

The item of behavior that was used is known not to occur spontaneously; its occurrence is significant if it is found at all. The results of the pilot and main experiments may be regarded as confirming the hypothesis that trance behavior is affected by the individual's conceptions about hypnosis held prior to entering the hypnotic state.

It would not be expected that all *S*s would show this behavior. No truly naive *S* population is available, and many of the *S*s had observed hypnosis

prior to the demonstration. Some *S*s should therefore have sufficient prior information to have formed very strong conceptions unlikely to be altered by the relatively mild attempt to manipulate these ideas experimentally.

That three of the nine *S*s in the control group spontaneously manifested catalepsy of both hands is readily understood in view of the repeated testing for catalepsy, which they apparently interpreted as a cue to manifest the behavior. None of the control *S*s, it should be emphasized, manifested unilateral catalepsy, indicating that no such desire was communicated by the hypnotist to the *S*.

This study has demonstrated for a single behavior item that trance behavior is affected by individual preconceptions about hypnosis. The results can be extrapolated to account for the apparently fixed qualities, not stemming from cues given by the hypnotist, that are reported in practically all present-day descriptions of hypnosis

Thanks to the media of mass communication, it is relatively easy for a particular view of hypnosis to have gained wide currency and thus be found as a part of the general knowledge in which the *S*s share. Such novels as *Mario and the Magician* (Mann, 1931) and *Trilby* (DuMaurier, 1895) have had very wide audiences and are known indirectly to almost all members of our culture. Uncounted articles and features about hypnosis have been disseminated to all levels of society. The picture of hypnosis that emerges in all of these is that of a passive *S* in a sleeplike state who has amnesia for the events occurring in hypnosis, and responds only to the hypnotist's suggestions. According to Dorcus, Brintmall, and Case (1941), 79% of the student sample that they studied accepted hypnosis as possible, 71% had discussed hypnosis with someone, 54% had read about it, and 29% had actually seen a hypnotic trance at one time during their lives.

In the context of group tests for "suggestibility," in order to screen *S*s, the investigators asked 57 students in elementary psychology courses: "Have you observed any other demonstrations of hypnosis; if so, where and when?" and "What have you read about hypnosis?" Only 12 *S*s denied both having read about hypnosis and having had any chance to see the phenomenon previously; 18 *S*s had seen hypnosis demonstrated in some form, and 23 had somehow read about it.

In the context of the questionnaires used in the above studies, "having read about hypnosis" meant specific reading in the scientific sense. In questioning well over 200 student *S*s about their knowledge of hypnosis, the author failed to find one who did not have a very clear-cut notion about the nature of hypnosis, and who could not define the trance in a fashion similar to that found in dictionaries. Furthermore, they had all read something about hypnosis and could recall having done so, once it was made clear that this included nonscientific sources. The normal *S* population thus knows the the meaning of the word hypnosis prior to taking part in any study.

Cues Implicit in an Experimental Design

An *S* participating in an experiment is aware that his responses are being recorded for specific purposes—that there is a *raison d'être* for the experiment- and he frequently has some idea of what these purposes are. How this knowledge affects the *S*'s behavior depends upon the motivational structure that he brings to the experimental situation. The participation of the college student volunteer in psychological studies is usually due, not to the relatively low monetary remuneration but, rather, to his interest in taking part in scientific research, which in turn is likely to be based, at least in part, on a desire to further "progress in science" by his participation. Since the experimenter is perceived as knowing what he is doing, furthering "progress in science" may well be equated with "making the experiment work" or, in more sophisticated terms, having his individual performance support the hypothesis of the experiment. Thus, when the *S* is motivated to comply with the wishes of the experimenter, his responses are readily influenced by what he perceives to be the basic hypothesis of the experiment.

Typically, the experimenter's hypotheses are not stated explicitly to the *S* because of the very considerations just mentioned. But unstated hypotheses may be conveyed implicitly by the experimental procedure itself, through what will be called here the "demand characteristics of the experimental situation." It should be understood that a person may fail to perceive fairly clear demand characteristics either because of lack of past experience or because of an inability to generalize from it.

Demand characteristics thus conceived appear central to much psychological work. Experimental situations vary widely in the extent to which they convey the purpose and the hypothesis of the experimenter. If an *S* can describe a hypothesis being tested, of which he is supposedly unaware, the experimental arrangements have significant demand characteristics. The obvious way to test for their presence is to ask the *S* about his perception of the experiment and its purpose. Usually, however, *S*s are reticent about revealing their notions about the purpose of the experiment.

It is reasonable to assume that the student *S* population has some sophistication in regard to the philosophy of experimentation. They are aware that if an *S* is not told the purpose of an experiment he ought to remain naive in regard to it, lest his knowledge influence his performance. At the same time they understand the necessity for an experimental *S* to be "honest" in his response to the experimental situation and to questions about it. For these reasons, *S*s are motivated to avoid recognizing explicitly the purpose of an experiment even though it may be clearly communicated by its design. Thus, the response to the direct question "What do you think this is about?" tends to be "I don't know." The *S*'s behavior may

nevertheless clearly betray an implicit awareness of the relevant factors, and he may even verbalize them after the experiment in a "bull session" with his friends. We deal, therefore, with "knowledge" not readily available to consciousness which must be elicited in a clinical fashion. As in the case of other such material, the boundaries of consciousness may be expected to vary with the situation. When, however, a clinical approach is used in an inquiry and the *S* is pressed, one may be amazed- or horrified -by the *S*'s ability to formulate one's hypotheses in a lucid and at times highly sophisticated fashion. Unfortunately, the so-called inquiry is usually a most casual procedure.

While the demand characteristics of experimental situations probably have wider significance than is generally recognized, they are particularly significant for hypnotic experiments. Hypnotic *S*s tend to be particularly cooperative, almost eager participants. Furthermore, one of the assumptions of the present research for which there is extensive observational support is that the hypnotic state as such increases the motivation of the *S* to comply with the wishes ("suggestions")- both explicit and implicit--of the experimenter. The extent to which compliance can take place depends upon the demand characteristics in the experimental situation. The usual problem of demand characteristics (difficult enough to control in other fields of psychology because of the unconscious cooperation between *S* and experimenter) is thus compounded in hypnotic research.

In order to investigate the influence of the demand characteristics of an experimental procedure, a recent study (Ashley, Harper, & Runyon, 1951) was repeated with minor variations to be described. This experiment attempts to demonstrate a further dimension of the Bruner-Goodman (1947) effect, which has been the center of major controversy in recent years. Bruner and Goodman's basic tenet was that the perceiver's values alter his perception. There is no question that the perceiver's *previous experiences* may affect perception. A dispute, however, centers about whether *values* as such are significant variables affecting perception.

In order to show "clearly and unequivocally that the perceiver can contribute to the organization of his perception in a structured stimulus-situation," Ashley, Harper, and Runyon (1951) argue it would be necessary to have a special situation. They state: "The Bruner and Goodman type of experiment would do this *if* the rich group and the poor group were identical in every other respect in terms of their experience with money, their life histories, their physiological conditions, in short, if the sole difference between the two groups was that only one group had the psychological organization . . . of rich people and the other group the psychological organization of poor people." They go on to say: "Actually for our problem, it is irrelevant whether the *S*s are economically as well as psychologically rich or poor, or whether they are only psychologically rich or poor. In either case, a difference in performance of the two groups would reflect

a difference in the perception due to the psychological organization of the perceivers" (p. 565).

In order to obtain two groups identical in every respect but for their perception of their economic status, they used hypnosis. While the *S* was in trance, artificial life histories were induced—one rich and one poor—each followed by induced amnesia. In essence, then, they view the situation as if two identically matched groups were available—one rich, and one poor. It is assumed that because amnesia was induced for the preceding state, the *S* is again naive and that the only difference is in respect to his perceived economic status.

The final sentences of their rationale are particularly interesting. "Even though we do not know fully what happens when we hypnotize a person, if we do hypnotize him and tell him he is rich and he behaves in one way in the coin-matching situation, and then, a few moments later, we tell him he is now poor and he behaves in another way, *we can conclude that the observed difference is due to a change in his psychological organization*" (Ashley et al., 1951, p. 565).[3] The authors in fact conclude from their data that the psychological organization (including the wants, needs, interests, attitudes, and values) of the person contributes to the figural organizations of his perceptions.

It is unquestionably true that observed differences in coin-size judgments are due to changes in psychological organization The question with which we are concerned, however, is whether these changes in psychological organization relate to the actual experiencing of the feelings of being rich or poor, or whether they reflect the demand characteristics of the experimental procedure. The hypothesis to be tested is that the demand characteristics of the experiment are largely responsible for the results obtained by Ashley et al. (1951).

Disregarding the theoretical framework of the study, this is what actually took place: An individual was told—in hypnosis—that he was very poor, then—again with amnesia in hypnosis—that he was very rich and, subsequently, with another hypnotically induced amnesia, that he was himself. In each of these states he was required to make a series of coin-size judgments. The authors' interpretation rests largely on the assumption that hypnotic amnesia is truly the same as not knowing. Granted this, one would be justified in ignoring the fact that the procedure of coin-size estimation is repeated and that economic status is hypnotically induced. However, data are available that lead one to question this assumption.

One of the few specific experiments dealing with posthypnotic amnesia directly is a study by Strickler (1929), who compared the relearning of nonsense material in the post-hypnotic state with induced amnesia with the learning time required for the material not previously learned. He

[3] Italics mine.

concludes that "the posthypnotic amnesia ordinarily met with, which appears superficially to be a complete wiping-out of memory, is by no means complete."

Even more relevant are the data obtainable in hypnotic age-regression. Here we are dealing with an induced amnesia in hypnosis for what purports to be all material learned after a given age. All studies of hypnotic age-regression have shown that some material persists no matter how "real" the regression appears.

In the investigator's prior work (Orne, 1951), it was possible to show that an individual regressed to age six was able to comprehend English, though he himself pointed out in German that he could not understand it. Historically, the *S* was unable to understand English at age six. Another *S* could spell without error "I am conducting an experiment which will assess my psychological capacities." Another was able to give the square root of four, and so on. Furthermore, if we test for amnesia in a more subtle fashion, it is easy to demonstrate in the wake state or in trance that no true ablation of the material for which the *S* has amnesia exists, despite his subjective feeling of being unable to remember.

The fallacy of the assumption that knowledge for which the *S* has amnesia does not influence his behavior can be seen in any posthypnotic suggestion. The *S* firmly denies recall yet assiduously persists in the suggested behavior. The phenomenon is well known in response to an explicit cue; it would seem rather absurd to deny it in response to an implicit one.

A pilot study was therefore conducted that replicated all essential characteristics of the Ashley, Harper, and Runyon experiment, with the addition, however, of a careful inquiry after the completion of the experiment. The procedure was patterned after the inquiries commonly performed as part of the Rorschach test, which seek answers to a series of questions without providing the *S* with a cue as to the answers expected. 1. The subject's perception of the experimental task was elicited by a general question, "What do you think this experiment was about?" 2. The *S*'s perception of the purpose of the investigation was elicited by questions such as "What do you think this experiment is trying to prove or demonstrate?" 3. *S*'s perception of the experimenter's hypothesis was elicited by direct questioning, with such questions as "What do you think I hope to find?" 4. The *S* was also asked about his own hypothesis concerning the study—what he, on the basis of what he knew about the experiment, would predict the results to be 5. The final question related to his beliefs about his own performance with the question, "What do you think your experimental behavior demonstrates?"

The following hypotheses were formulated:

> 1. The subject in an experiment is usually able to express some demand characteristics of the procedure, if careful inquiry is conducted and his initial resistance is penetrated in a clinical fashion.

2. The majority of subjects may perceive the same demand characteristics in the experiment and these may be the same as the hypothesis being tested.

3. These demand characteristics rather than the experimental variables may be the major determinant of the subject's behavior.

a. If the majority of subjects perceive the same demand characteristics, then subjects who fail to perceive them should not show the behavior characteristic of the group.

b. If the demand characteristics are the determinant of subjects' behavior, it is possible for an experimental design that omits a crucial aspect of the original independent variable to elicit similar responses to the extent that the same demand characteristics are present.

Pilot Study

The pilot study was designed to test the first two hypotheses.

PROCEDURE

The Ashley, Harper, and Runyon study was repeated in all essential details with four undergraduate *S*s, with the addition of appropriate inquiry. Equipment employed in the original Bruner-Goodman study (1947) was used for making the coin-size estimations. Unlike the procedure of Ashley, Harper, and Runyon, however, the coins were presented on the *S*'s left palm which he was permitted to hold beside the box. He was not permitted to remove the coin from his palm.

All *S*s used in this study had demonstrated their ability to manifest all of the usual deep trance phenomena including responsiveness to post-hypnotic suggestions and the ability to experience what appeared to be total amnesia when this was suggested.

The procedure, briefly stated, was as follows: After *S* was placed in trance, amnesia for his own life history was induced. He was then given a pseudo-life history which was essentially the same as that described by Ashley, Harper, and Runyon. The poor state was induced first, then the rich state, and finally the normal state. The *S* judged coin sizes in all three states. The same *S* was run with both imagined coins and with real coins presented in all three states. Also in all three states, he was given brass slugs which were called "lead," "silver," "gold," and "platinum." The brass was of a very whitish color so that it could conceivably have been the appropriate metal.

RESULTS

The results are summarized in Figure 1b, which presents the subjects' average coin-size estimates. The data are essentially identical to those obtained by Ashley, Harper, and Runyon (see Fig. 1a). The data on the size estimates of "slugs" successively called silver, gold and platinum were also similar to those presented by Ashley, Harper, and Runyon in their series using a lead slug. All of the four subjects were able to describe

correctly the purpose of the experiment and the hypotheses of the investigator who originally designed the experiment

DISCUSSION

The data from the pilot study imply that the present procedure effectively reproduces that of Ashley, Harper, and Runyon Both in terms of the quantitative results and the observed behavior of our *S*, no significant differences emerge

The only essential difference between these data and those obtained by Ashley, Harper and Runyon relates to the inquiry procedure The results confirm the first two hypotheses 1 The *S* in an experiment is able to express some demand characteristics of the procedure if careful inquiry is done and his initial resistance is penetrated in a clinical fashion 2 The majority of *S*s may perceive the same demand characteristics of the experiment and these may be the same as the hypothesis being tested However the third hypothesis has yet to be dealt with

It is interesting to note that two of the four *S*s who were specifically questioned about this point denied vehemently that they were influenced during the experiment by an awareness of the experimenter's hypothesis But the *S*'s verbalization during inquiry cannot be accepted at face value As long as the *S* recognizes and is able to verbalize the demand characteristics of the experiment they may play a significant role in his experimental behavior, although to demonstrate that they do so requires supporting evidence It is with this further evidence that the main study is concerned

Main Experiment

While the data found in the pilot study are consistent with the hypothesis that the demand characteristics of the experimental procedure may determine behavior they are open to several serious objections

The greatest single problem relates to the technique of inquiry and the interpretation of the data obtained in this fashion It is important to have an objective method of rating how well the S perceives the demand characteristics of the experimental situation The study was therefore designed so that the *S*'s inquiry would be rated by independent judges who did not have available to them the *S*'s data, but who would only have the opportunity of reading transcripts of the inquiry

Another problem is a bias inherent in the inquiry procedure Some *S*s who do not perceive the demand characteristics while engaged in the formal experimental procedure may perceive them during the inquiry In such a case, and if the demand characteristics rather than the experimental

variables determine the response, then the inquiry may indicate that the *S* should have responded a certain way when in fact he did not. However, the reverse should not occur

The question still remains as to whether the *S*'s perception of the demand characteristics is responsible for his behavior, or whether it is due to the operation of the "intended" experimental variables. This question was dealt with by including a control group that could not conceivably be construed as experiencing a "psychologically rich and poor state" If it could be demonstrated that a group of *S*s who do not experience the "rich and poor state" but are exposed to the demand characteristics of the procedure also show the data reported, it would be justifiable to attribute the results to the demand characteristics rather than to a presumed change in the psychological organization of the individual because of being "psychologically rich and poor" The control group thus permits inferences without reliance on the inquiry

A group of *S*s who were not in hypnotic trance and did not manifest amnesia should provide such a control group They would, of course, have to go through the same procedure as the "real trance" group Such a group of *S*s would be asked to "play act" being in hypnosis and go through the whole procedure as if they were real *S*s This group of *S*s would not truly consider themselves as psychologically rich or poor In these *S*s no amnesia could be induced, and their behavior would clearly be that of a group of persons acting under three different sets of instructions act as though you were poor, rich, and yourself

This type of procedure is open to an important objection Experimenter bias could play a major role While the procedure and the wording of instructions would be the same, it would be possible unwittingly to include a variety of cues which could differentially shape the behavior of the two classes of *S*s A blind technique is thus necessitated, in which the experimenter would not know which *S*s were "real" and which were "fake"

Such a stratagem presupposes that a "fake" *S* can simulate hypnosis sufficiently well to deceive the experimenter However, there is a widely held opinion in the literature that it is impossible to simulate hypnosis successfully (Jenness, 1944; Stokvis, 1955) Cursory attempts by the author to have *S*s fake trance showed that the *S*'s efforts were half-hearted and obviously transparent.

In the usual faking situation. the experimenter knows that the *S* is faking, and the *S* is aware that the experimenter knows it; the usual purpose of this situation is to demonstrate the difficulties of fooling an experienced hypnotist. Clearly, the experimenter is not really expecting the *S* to be able to carry out his task effectively, and the *S* is aware of this. Thus, the *S*, who is anxious to please the experimenter, is in actuality motivated to give an unsuccessful performance. Furthermore, since the *S* is aware that the experimenter knows that he is acting, the *S* feels,

with good cause, that it is impossible to deceive the hypnotist. There is a marked tendency to smile during induction procedure and in response to suggestions that might be construed as foolish, as well as to ask "How am I doing?" at intervals. Any suggestions that evoke even mild discomfort are followed only briefly and half-heartedly.

Most classical texts and modern authorities agree that hypnosis cannot be faked easily and "if a subject attempts to fake, tests for anaesthesia will permit ready recognition" (Estabrooks, 1948; LeCron & Bordeaux, 1947, p. 103; Mayer, 1951). However, the author has, upon two occasions, been taken in by *S*s who had apparently faked their way through the procedure and who subsequently disclosed the fact. In discussions with other hypnotists he found that all who had had considerable experience could recall similar instances.[4] These experiences are usually explained by stating that such *S*s must really have been in the trance state or they would not have been able to act as well as they had, a view that is supported by the literature on hypnosis. The report of the *S* that he has not really been in hypnosis is thus lightly passed over, since "subjective reports are really not reliable." It is the author's opinion that it is dangerous to ignore the conviction of the *S*, expressed in good faith, that he did not experience the amnesia or anaesthesia or any other trance phenomena that he appeared to have experienced; and that it is indeed possible to construct a situation that would facilitate the successful "faking" of a hypnotic trance.

To do so it is necessary to motivate the *S* to act the part of a hypnotic *S*—not to go into a trance—and for him to believe that it is possible to convince the hypnotist that he really is in trance. Accordingly, a situation was set up in which the *S* knew that the hypnotist would not know in advance whether or not he was really in trance. Further, it was so structured that the *S* would perceive the desire of the experimenters for him to do a successful job of faking. Finally, the situation was presented as a challenge that provided ample motivation for the *S* to tolerate unpleasant suggestions or tests.[5]

[4] In this respect, it is interesting to note that Pattie (1937) was sufficiently concerned with being deceived by a faking *S* that he asked each *S* to sign a statement "I, realizing that the experiment performed on me will probably be published in a scientific journal, solemnly declare that I was not faking or imitating the hypnotic trance but that I was genuinely hypnotized and do not remember the events of the experimental periods."

[5] After the completion of this study a previous reference to the use of a faking subject as a form of control was encountered. In an experiment on hypnotic pain suppression, Dynes (1932) asked a member of the psychology department to talk to *S*s privately and have them fake a trance the next time. The *S*s thought that he knew nothing of the plan and carried out the request to fake. However, Dynes, himself did know and reports no difficulty in distinguishing this state from the real trance. It would have been interesting to know whether Dynes would have found it quite so easy to distinguish the behavior had he not known in advance.

TRAINING OF SUBJECTS

College students from Harvard and Brandeis were used as *S*s. All *S*s had been present during a lecture about hypnosis and a demonstration of the phenomenon given by the author in the context of an introductory psychology course. All *S*s were volunteers who agreed to take part in the study at the time of the lectures. No *S*s were paid. All had also been tested and rated by investigators other than the author for "suggestibility," in at least one screening session. All *S*s in the real trance group had further training with the author's associate. In order to satisfy criteria for depth of trance, they had to manifest the ability to respond to all the usual hypnotic suggestions with special emphasis on analgesia, visual hallucinations, negative auditory hallucinations, amnesia induced by suggestion, and simple posthypnotic suggestions.

The fake group of *S*s was drawn from the same population as the others but did not have special training in entering trance beyond the first screening session. They were all informed of their task in the manner described below.

The experimental procedure was administered to all the *S*s by the author, and he was given no information or cues by his associates as to which group any *S* might belong. Nor was he informed of the number of real and of fake *S*s. There were seven real *S*s and 11 fake *S*s.

SPECIAL PROCEDURE FOR FAKING SUBJECTS

Prior to the experiment, the faking *S*s were told by an investigator other than the hypnotist:

> We're doing a study in which we would like you to take part. You recall some time ago you volunteered as a subject for some hypnotic experiments. We would like you not to go into a hypnotic trance; however, Dr. Orne, who will be working with you, will not know whether you are a real or a fake subject. He will go through trance induction with you, and then several tests and an experiment. We would like you to act as if you were entering a trance, but I don't want you to go into a trance. Your job is to fake the whole thing and to try to fool Dr. Orne. He knows that I may have some people trying to fake their way through the experiment but he has no idea who they are. I would like you, as a special favor, to try to do the best possible job of fooling him; to really convince him that you are in a trance. This is quite difficult but a very important part of the experiment. I am trying to find out whether people are capable of doing this successfully. One of the tests which he will do with you will involve a harmless but somewhat painful electric shock. After the trance part, which you will have been faking, he will ask you some questions about it. Again, I don't want you to let on that you have been faking, and I want you to try to answer these questions as though you had been in hypnosis. Please keep on playing this part until I give you a signal. After the signal you can tell him what really

happened The signal will be that I will turn off the light on a box which will be on the table in front of you I am sure that you will be able to do a good job of it

The *S*s usually objected by saying that they did not know how a hypnotized *S* would act They were told that although this feeling was understandable, others had been able to carry it off and that besides, they themselves had seen other *S*s go into a hypnotic trance during a previous demonstration

The motivation for the *S* to act the role of the hypnotized individual is fairly clear The author had been presented to the *S*s as an authority in the field of hypnosis and they had been taken into confidence by one of his associates in an attempt to fool him Thus, on the one hand they were contributing to the advance of knowledge, on the other, they would have the pleasurable experience of "putting one over" on one of their teachers

EXPERIMENTAL PROCEDURE

At the experimental session the *S* was exposed to trance induction The Erickson hand levitation technique as described by Wolberg (1948) was used After the *S* appeared to be in trance, a series of tests were done such as hand clasp analgesia negative auditory hallucination, and positive visual hallucination

When these tests had been completed the *S* was told that his name would appear on his forehead and that he would feel it as though it were there in Braille After this suggestion had been accepted, he was informed that if he would wipe this off he would forget everything about himself Once he had accepted the suggestion of total amnesia the rich state and the poor state was induced in a fashion identical to that used by Ashley et al (1951) The *S* was then asked to make coin-size judgments of a penny, nickel dime and quarter, again using the original Bruner-Goodman box He was required to make six coin-size judgments of each coin in each state The final set of judgments was made in his normal state but with the suggestion that he had no recollection of anything that had happened since he entered trance The rich and poor states were randomized as well as the order of the coins A balanced design could not be achieved in respect to coin order because of the number of *S*s used, but it was approximated as far as feasible The hypnotist-experimenter did not know the key to the order and was merely told in each instance which state he was to run first and with which coin to start.

The procedure used by Ashley, Harper, and Runyon and in the pilot study, of estimating the size of the lead slug which was called lead, silver, gold, and platinum, was omitted

At the completion of the coin-size judgments, an inquiry was performed

as previously described. This inquiry was the same for all *Ss*. At the completion of the inquiry, both in the hypnotic and wake states, the light of the Bruner-Goodman apparatus was turned off, which was the signal for the fake group to tell what really happened. If the *Ss* were real, this had no meaning to them, and the experiment was completed. Those of the fake group were asked a series of questions as to whether or not they had been in trance. They were also asked about their performance, why they had acted as they did on some points, and if and when they felt anxious. Finally, they were asked whether they thought that they had given themselves away; if so, when and why. All of these inquiries were completely tape recorded and transcribed so that, subsequently, judges could rate what each subject perceived as the hypothesis being tested.

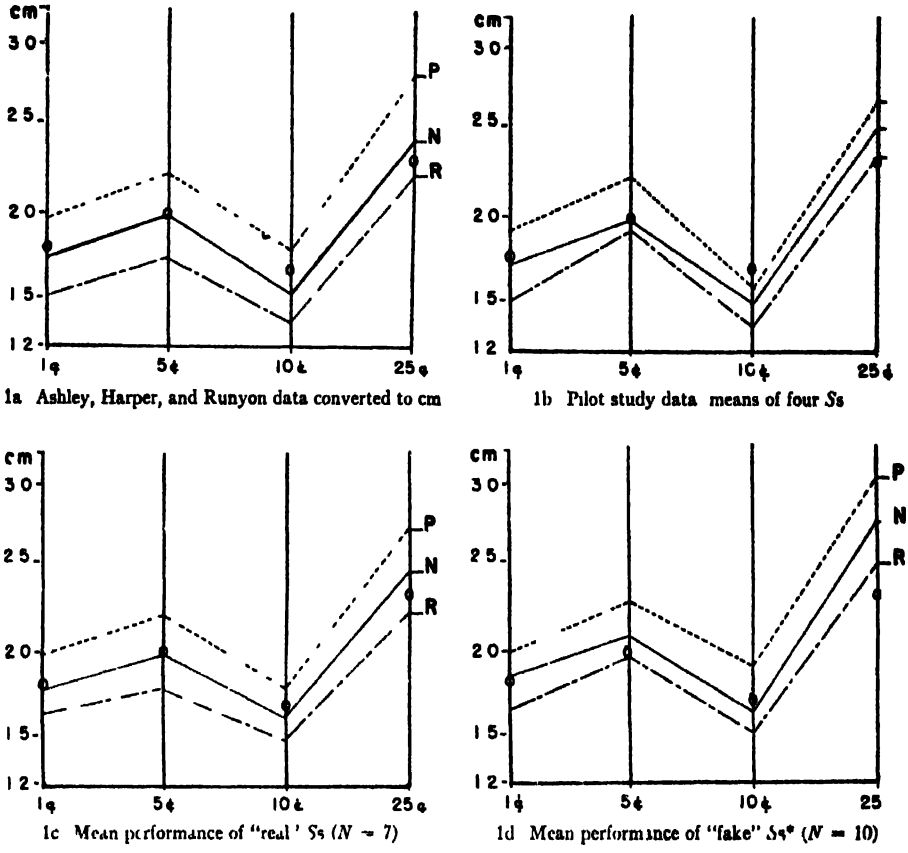
RESULTS

1. *Objective Findings Group Results* Figure 1 displays a comparison between the present data and those of Ashley, Harper, and Runyon (Fig. 1a); in Fig 1c, the results of the hypnotic *Ss* are averaged in the manner described by Ashley, Harper, and Runyon; in Fig 1d, the results of the "fake" *Ss* are averaged in the same manner. All three graphs present essentially the same configuration. In all cases the judgments in the poor state are the largest, judgments in the rich state smallest, while judgments in the "normal" state fall between

2. *Results for Individual Subjects.* Figures 2a and 2b give the results for each "real" or "fake" *S*. *Ss* varied widely in their response to the experimental task, not all of them yielding a configuration that corresponds to the group average While Ashley, Harper, and Runyon unfortunately do not give their individual results, they report considerable variation.

3. *Comparison of Judges' Ratings with Objective Categorization.* Using analysis of variance for each individual S, it is possible to test statistically whether there are significant differences between *S*'s coin-size estimates in any combination of the three states and the direction of significant differences. Ignoring the "normal" judgments, the possibilities reduce to three categories: no significant differences between rich and poor, poor significantly larger than rich, and rich significantly larger than poor. Each *S*'s coin-size judgments were classified into one of the three categories on the basis of statistical analysis considering differences not significant at the .05 level as no difference.

The transcribed postexperimental inquiries were given to two independent judges to rate the *S*'s perception of the hypothesis being tested at the time of the experiment in terms of the same three categories. The judges had no contact with the *Ss* or each other. Table 3 shows a comparison in terms of the three categories between the ratings of the two judges and the individual's responses. There is a high degree of correspondence between the judges' ratings and *S*'s performance.



1a Ashley, Harper, and Runyon data converted to cm

1b Pilot study data means of four *Ss*

1c Mean performance of "real" *Ss* ($N = 7$)

1d Mean performance of "fake" *Ss** ($N = 10$)

FIG. 1 COMPARISON OF ASHLEY, HARPER, AND RUNYON DATA WITH DATA FROM PRESENT REPLICATIONS
(Legend [R] = Rich [P] = Poor [N] = Normal [O] = Actual coin size)
* One *S* (B S) was highly atypical and therefore excluded. See Fig. 2(b) for his performance.

Testing the null hypothesis of no systematic correspondence between judges' rating and *S*'s coin-size judgments leads to its rejection for each judge ($p < .015$, Fisher Exact Test), combining the significance levels of the two judges leads to an over-all significance of less than .01.

DISCUSSION

The data obtained from the seven hypnotized *Ss* are essentially identical to the findings of Ashley, Harper, and Runyon, and virtually indistinguishable from the performance of the 11 simulating *Ss*. These results confirm the hypothesis that it is possible for an experimental design that omits a crucial aspect (hypnotic amnesia) of the original dependent variable to elicit similar responses as long as the same demand characteristics are present.

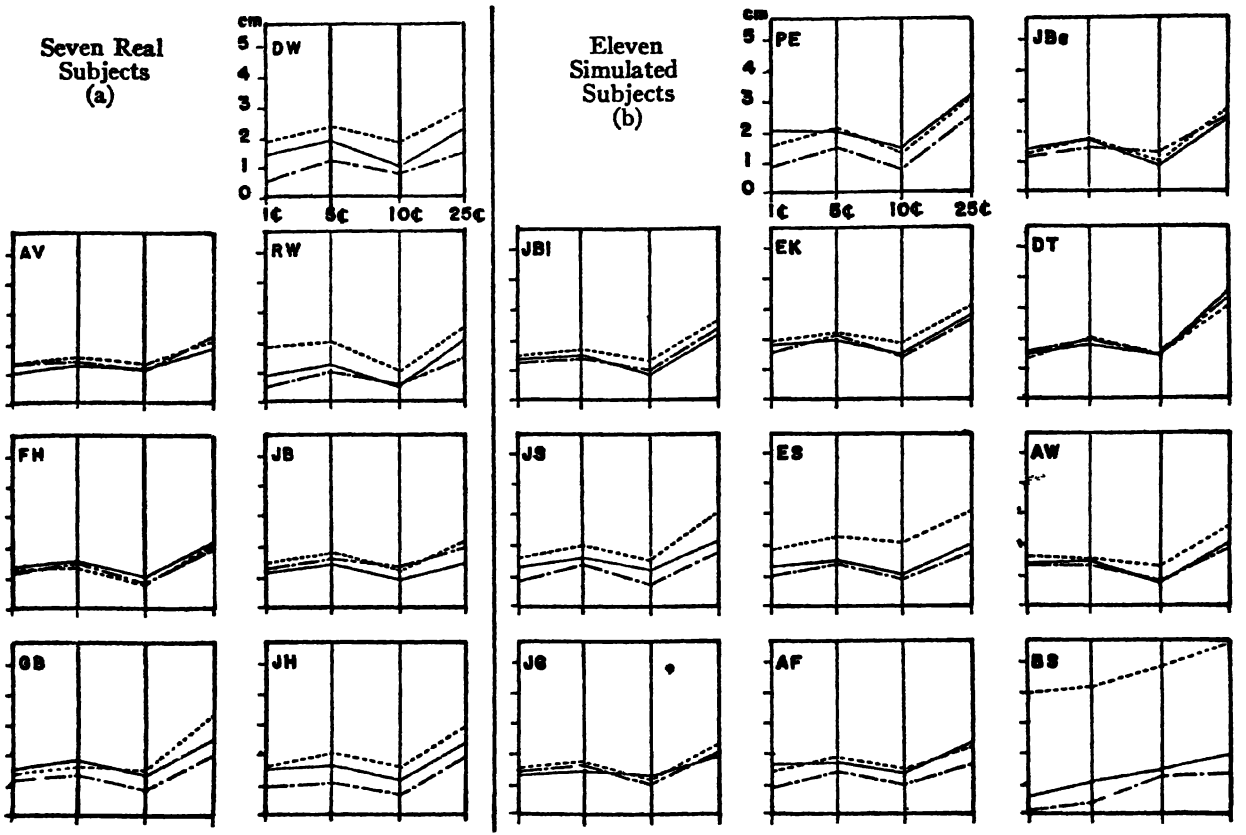


FIG. 2. GRAPHS OF INDIVIDUAL SUBJECTS
(Legend: [---] = Poor; [—] = Normal, [—·—] = Rich)

The subjective experience of members of the simulating group was radically different from that of the *Ss* in deep trance The *Ss* readily described their conscious efforts to "second guess" what the experimenter would expect of them if they were actually in hypnosis The data obtained from the simulating group are the results of a concerted effort on the part of the *Ss* to respond in a way identical to hypnotized *Ss* The subjective experience of the hypnotized group was different While clinical inquiry revealed the *Ss*' perception of the author's expectations, they denied that

TABLE 3

A COMPARISON OF JUDGED AND ACTUAL CATEGORIES OF RESPONSE

Subject	*Major Categories*		
	J1	J2	Actual
G B	II	II	II
I H	II	II	I
J H	II	II	II
A U	II[a]	I	I
R W	II	II	II
D W	II	II	II
J Ba	I	I	I
P I	II	II	II
J Bl	II	II	II
J G	I	I	I
A W	II	II	II
L S	II	II	II
J S	II	II	II
D I	I	II	I
A I	II	II	II
E K	II	II	II
B S	II	II	II

Note Key to symbols I N significant difference II Poor significantly larger than rich III Rich significantly larger than poor

Two judges were used (J1 and J2) Note that none actually belong in Category III and that neither judge placed any S within it

[a] Judge undecided about I or II here but how II is better estimate

these factors had any effect upon their performance This denial on the part of the hypnotized *S* does not, of course, mean that their perception of the experimental purpose was unimportant It does mean, however, that they themselves were not aware of its significance

An investigation of the demand characteristics perceived by each *S* may account for individual results that did not conform to the group average, as an examination of the judges' ratings confirms It was discovered that the inquiry procedure had not been refined sufficiently to permit prediction of the *Ss* performance in the "normal" state However, performance in the "rich" and "poor" states could be predicted with a high degree of accuracy from the judges' ratings of the *S*'s perception of the experimental purpose No *S* reversed the expected trend by making his coin-size judgments larger in the rich state than in the poor state. No *S* was rated by either

judge as having perceived this to be the hypothesis of the experiment. Twelve subjects made the coin-size estimates significantly larger in the poor state than in the rich state. All 12 *S*s were rated by both judges as having perceived this to be the author's hypothesis. Five *S*s failed to significantly differentiate their coin-size judgments between the rich and poor state. Of these five subjects, four were rated by either one or both judges as having failed to perceive the demand characteristics of the experiment.

The inquiry data thus support Hypothesis 3*a*, that if the majority of *S*s perceive the same demand characteristics, then *S*s who fail to perceive these demand characteristics should not show the behavior characteristic of the group.

The present experiments do not bear on the validity of the Bruner-Goodman effect. The Ashley, Harper, and Runyon experiment was used, rather, as an example of a study that appears methodologically sound, but in which demand characteristics seem to be the major determinant of the *S*'s performance. The implications seem clear: demand characteristics may determine behavior in hypnotic experiments. Before an effect can legitimately be attributed to hypnosis, it is necessary to demonstrate that it is not primarily a function of demand characteristics. Such proof appears to require the use of blind techniques and adequate inquiry.

The Influence of Motivation on Hypnotic Behavior[6]

In studying the nature of the hypnotic trance, the question arises as to which phenomena are primary and consistent components of the trance state and which are secondary derivatives. Let us postulate that increased motivation is a constant accompaniment of the hypnotic state. The present phase of the research was designed to show that certain phenomena long viewed as part and parcel of the hypnotic state may more parsimoniously be viewed as derivatives of increased motivation, and can be reproduced *pari passu* by other motivational techniques that have no direct relationship to hypnosis.

For years it has been claimed that there is an increase in physical capacity during the trance state. In part this claim has been based on casual observation, the favorite example being that of the stage hypnotist who places a subject in deep trance across two chairs and permits one or more individuals to stand or sit upon him. This "experiment," with variations, is often cited as irrefutable evidence for increased physical capacity. Another

[6] This experiment was originally reported in German (Orne, 1954).

group of frequently cited observations are those concerning the ability of the subject to maintain his hand in an outstretched position for extended periods of time without evidence of fatigue. On the basis of this type of data, estimates of greatly increased physical capacity have been made (McDougall, 1926; Moll, 1904).

An early study by Nicholson (1920, p. 89) maintained that "during the hypnotic sleep the capacity for work seemed practically endless." Unfortunately, no quantitative data were given, and the study was poorly controlled. In a meticulous investigation, Williams (1930) showed no difference between hypnotic and wake states in the ability to maintain the arm in an outstretched position. However, this study failed to employ suggestions to the effect that the arm would not get tired and could not drop. In another similar investigation, using an ergograph and employing appropriate hypnotic suggestions, Williams (1929) found a 12 to 16% increment in the trance. More recently, Roush (1951) showed an increment in performance in hypnosis significant at better than the .05% level using the arm dynamometer, the hand dynamometer, and hanging by the hands, as measures of fatigue.

All the experiments performed by psychologists in the laboratory have followed orthodox scientific methods insofar as a standard set of instructions was given to the *S* to hold a weight, pull an ergograph, or perform a similar task in both the nonhypnotic and hypnotic states. The better experiments used the usual ABBA arrangement to control fatigue or practice effects. Any increment in performance was defined as an increase in capacity due to trance. It is necessary here to question the logic on which the interpretation of these results is based. While these experiments undoubtedly show that instructions given in trance state result in increased performance over that achieved by the same instructions in the wake state, they do not necessarily show an increase in capacity. Alternatively, the *S* may be more willing to exert himself while in hypnosis. The governing factor could be the increase in the *S*'s motivation to comply with the experimenter's request rather than an increased capacity to comply. The instructions, while identical in wording, may be experienced as quite different by the *S* in hypnosis and the waking state. The request to hold a weight at arm's length, given in trance, may be a highly motivating cue or "suggestion," especially if the *S* is told that he is to feel very powerful and not fatigued. The identically worded request in the wake state is perceived as a request by the experimenter and may be followed if good rapport exists between experimenter and *S*. However, as the discomfort of the task increases, the *S* becomes increasingly disinclined to comply. Viewed in this context, the reported experimental results do not necessarily imply that physical capacity is in fact increased in trance but, rather, that the trance state increases performance.

PROCEDURE

Nine *S*s in deep trance were asked to hold a kilogram weight at arm's length. This was done in such a way as to derive maximal benefit from the peculiar nature of the trance state. Thus the *S* was told to hallucinate a table, and only after the table was both seen and felt by the *S* was the suggestion given that the right arm would feel no fatigue and no pain.

All the standard tests of deep trance were met in each *S*. A kilogram weight was placed in the *S*'s right hand, and the *S* was instructed to place it on the imagined table, to continue holding it with his fingers, and under no circumstances to drop it or his arm. Continuous suggestions were given to the effect that he would be able to hold onto the weight, that his arm would not get tired, etc., and that he would continue to see the table. The end point was when the *S* was no longer able to hold up his arm and began to come out of the trance. At this point he was reassured, told to drop the weight, and deep trance suggestions were again given. After some minutes, and having made certain deep trance was again established, the *S* was awakened with a carefully induced post-hypnotic amnesia. The *S* was not told the length of his performance.[1] For the second part of the experiment, which was done within half an hour of the first, the *S*, not now under hypnosis, was instructed as follows:

> This is a most important part of our experiment. It is very important for us to know your endurance and physical capacity. What I want you to do is a very difficult task. It does not look difficult but it is. I want you to hold this kilogram weight at arm's length. Your hand will get tired and it will take great effort to do this. There is a natural tendency to drop the weight if your hand gets tired. However, it is vital that we get your true capacity. Surprisingly enough, our female subjects have been able to hold the weight for T minutes. [The time T given would be his previous performance during hypnosis rounded off to the nearest half minute.] Our male subjects have been able to hold the weight at least T + ½ minutes. I realize that this is a difficult and painful task. Just to make it interesting we will try a game. At T minus 2 minutes we will start you off at 5 cents. At T minus one and a half, we will double that and make it 10 cents. At T minus one, 20 cents. At T minus one half, 40 cents. At T, 80 cents and at T plus one half, $1.60.

Then the *S* was told that while we could not afford to pay over $1.60, we were, of course, interested in how long he could actually hold the weight. One final point was explained to him:

> While we often feel that we are so tired that we cannot go on, this is not really true. One can rarely be so tired as not to be able to continue for 30 seconds. Accordingly, I would like you to give me one-half minute's notice before you actually drop the weight.

[1] In the preceding section it was pointed out that the posthypnotic amnesia induced in hypnosis is not tantamount to an ablation of memory. One may be justified in assuming that the *S*s do not know their hypnotic performance, not because of the amnesia but, rather, because they were never informed of the length of time they held the weight in hypnosis. A common belief that the *S* in hypnosis has a perfect sense of time would lead to the conclusion that this is not an adequate safeguard. Fortunately, a very thorough study of the time sense under hypnosis was conducted by Guenther Klaus in a doctoral dissertation (University of Freiburg, Germany, 1948) which demonstrates unequivocally that the time sense is not improved by hypnosis.

TABLE 4

COMPARISON OF SUBJECTS' PERFORMANCE IN HYPNOTIC AND WAKE STATE

	Hypnosis		*Waking*	
Subject	*Minutes*	*Seconds*	*Minutes*	*Seconds*
1	4	05	5	33
2[a]	4	40	6	25
3	4	38	8	06
4 (*a*)[b]	6	05	5	29
(*b*)	5	50	10	02
5	7	07	7	57
6	10	05	16	00
7	4	52	5	49
8	5	20	5	32
9	4	57	2 (*a*)	10
			5 (*b*)	09

[a] This experiment was performed in 1950. In 1957 it came to my attention that this S feels that he simulated completely throughout this experiment. At the time I was totally unaware of this possibility and the S was in trance by all the usual criteria.

[b] S dropped the weight after 3' 22" in the wake state. The next day care was taken to motivate him adequately. While the hypnotic performance was only 15" below the previous day, the wake performance now exceeded 10'.

This S suddenly dropped the weight without warning in the wake state after 2' 10". She was encouraged and after 1' 20" time in trance held the weight. This time her performance was 5' 09". This performance in itself is better than her hypnotic performance of 4' 5". However, it might seem that the waking performance was better than this as the 2' 10" period was not given credit.

RESULTS

Table 4 gives the results for the nine *S*s tested. All but one *S* in the wake state immediately exceeded hypnotic performance. This *S* held the weight for 6 min 5 sec in trance, a very remarkable performance, but in a subsequent wake state dropped the weight after only 3½ min. The exception demonstrates very clearly that it is necessary to ego-involve the person in the task and to convince him of his ability to do it. He reported that the seven minutes that had been given as an illustration of "average performance" had seemed so long, and his hand became so tired after three minutes that he felt convinced that he would be unable to come even close to the average, so therefore "why bother to try?" The next day the *S* was more carefully motivated and encouraged. He was then able to hold the weight for over 1 minutes.

DISCUSSION

This experiment does not purport to prove that there is no increase in physical capacity in the trance state. Because of the motivating nature of the trance state, and the operational difficulty in obtaining equal motivational states, it becomes a technical impossibility to prove conclusively whether increased physical capacity is produced or not. The data, however, do show that the usually observed increase in performance of trance *S*s may be accounted for by motivational difference.

From a theoretical viewpoint the reinterpretations to which this study had led seem most significant. As long as we believe physical capacity to be in fact increased by the simple expedient of the induced trance, it becomes necessary to look for the focus of the trance in something neurophysiological. If, on the other hand, we can understand the apparent increase in physical capacity observed during the trance state in terms of differences of motivation, we are then led to view hypnosis in psychological terms. It is clear that this study says nothing about why the trance tends to increase motivation nor does it even prove that this is so. It merely shows that adequate motivation in the wake state leads to levels of performance equal or better than those found in the trance.

An objection that might be raised takes the form of the question as to what would happen if similar motivational techniques were used in the trance state to those in the wake state. But this question has little bearing on the essential point. If application of these techniques should produce a trance performance greater than the wake performance, it could be interpreted as the result of combined effects of ego-motivation and the postulated increased motivation associated with hypnosis. If, on the other hand, performance in trance were not greater it could be argued that the type of ego-motivation used is not germane to the trance state.

It may, finally, be argued that the *S* in the wake state is, in fact, still in hypnosis, since the same experimenter who induced hypnosis conducts the second phase. Perhaps *S*s performed better in the wake state because of the demand characteristics of the experiment, i.e., my expectation that they should do so! It is not easy wholly to refute this argument. That all previous studies are open to the same criticism does not answer the question. The clinical observation that the *S* does not look, act, or feel in any way the same in the hypnotic part and the waking part appears much more relevant. Nevertheless, I hope sometime to repeat the study with the aid of another hypnotist who believes in "the power of hypnosis" and who, therefore, expects *S* to do better in hypnosis than in the wake state. If it were possible for me to enable *S*s subsequently to exceed their hypnotic performance, it would go far toward removing this objection, of which I was aware during the collection of data. A different way to check the results would compare the performances of "fake" and "real" *S*s, using the strategy developed in the section entitled Cues Implicit in an Experimental Design.

Real vs. "Fake" Hypnotic Subjects

The "real-fake" technique, a method of enabling *S*s to simulate hypnosis, was developed to demonstrate the effect of role-play artifact on trance behavior. Differences between the real and faking *S* that cannot be ac-

counted for by the faking situation may be viewed as characteristic of hypnosis. Some behavior shown by both groups may, of course, also be a true characteristic of hypnosis since the fact that someone is able to simulate a given type of behavior does not indicate that it is not genuine in the nonsimulating group. For example, that it is fairly easy to simulate the compulsive quality of the trance does not imply that this quality is not germane to hypnosis. However, assertions that volitional capacities can be transcended in hypnosis would seem to require showing that faking *S*s cannot produce similar performances.

The present use of real and faking *S*s in a blind design appears to offer several advantages It permits a rigorous control, in terms of behavior, of inquiry procedures designed to elicit demand characteristics of experiments In the faking situation, the variable assumed to be the cause of the behavior can be omitted If such behavior still occurs, it can then be accounted for adequately by the implicit demands of the situation. In this respect the technique may have useful application in other areas of psychology With respect to hypnosis itself, the technique permits a rigorous control of experiments that claim to demonstrate transcendence of volitional capacities It also helps to eliminate many biases almost universally present in hypnosis research and throws into relief certain differences between the "real" and "faking" groups which can then be attributed to the hypnotic state These differences may be highly germane to the essence of hypnosis and seem to have been obscured by the overwhelmingly impressive nature of the phenomenon.

THE FAKING SUBJECT

The situation of the simulating *S* may be viewed as one where he can (*a*) contribute to research by pleasing one experimenter and (*b*) satisfy different other needs by fooling another experimenter. The possibility of simultaneously satisfying usually incompatible needs leads to a state of peculiarly high motivation Thus, he is highly motivated to play the role of a hypnotized *S* and continues to do so even in the face of great discomfort, without, however, the alteration of consciousness and the subjective experience found in hypnosis

It had been anticipated that there would be differences in the clinical appearance of the two groups of *S*s, both when going into trance and while in trance. Since the hand levitation technique (Wolberg, 1948) was used to induce trance, it was expected that the "faking" *S*s would lift their hands in a manner clearly indicating active volition rather than permitting the hand to rise slowly and gradually in response to a subjective feeling of lightness Similar differences were anticipated in respect to eye-closure. When the inability to bend the extended right arm was suggested, differences were expected in the *S*'s attempts to do so. The *S*'s responses

to negative auditory hallucinations and positive visual hallucinations, analgesia and anesthesia, pseudo identities in the trance, and amnesia for the trance were all expected to be means of differentiating the two groups. The discovery that most of the simulating *S*s did not differ behaviorally from those in deep trance came therefore with considerable surprise. True, it was possible to distinguish most of the "faking" group from the "real" group, but this discrimination was based on a clinical diagnosis with an inordinate amount of subjective uncertainty and about 20% error. With prior knowledge that an *S* is simulating hypnosis it is very easy for the observer to discern cues that reveal the "faking" nature of the "trance" behavior. Without such prior knowledge, these cues are obscure and judgments can be made only with a great deal of subjective uncertainty.[8] If it seems obvious to the experimenter that the *S* is faking, systematic error would again be introduced, and could affect the results. In such cases it seems desirable to discard the subject from the experiment, as was done in two instances in the present study.

RESPONSE TO PAIN IN "FAKE" AND "REAL" SUBJECTS

Traditionally, hypnotists have viewed the induction of analgesia for highly painful stimuli as the best test for clearly distinguishing simulating *S*s from the *S*s in deep trance. The author expected, therefore, to find that reactions to pain would distinguish between the "real" and "fake" groups.

The technique for producing pain for testing hypnotic analgesia which the author had been using routinely involves forcible flexion of the two terminal phalanges of the little finger and pressure of the experimenter's thumbnail on the dorsal aspect of the middle of the second phalanx of the *S*'s little finger. These techniques failed to discriminate between the two groups. The "faking" group reported pain but indicated that they had had little or no difficulty in suppressing their reaction.

In order to provide a more painful, though still safe, stimulus a Harvard inductorium was employed. Standard Grass silver electrodes were applied to the sides of the index fingers and fixed with adhesive tape. It was found that the "faking" group flinched less and tolerated more pain than the "real" group. Actually, almost all of the *S*s tolerated the maximal stimulation that could be applied by the inductorium.

Another procedure, not particularly painful in itself, was designed to maximize anxiety about pain. Negative auditory hallucinations were induced and at the same time an analgesia of one hand. A match was then lighted

[8] The experimenter is currently attempting to study systematically the cues perceived as indicative of faking by an observer who knows that the *S* is simulating to see if consistent patterns appear. However, results thus far indicate that observers who had experience with observing faking *S*s, knowing that they were simulating, did not thereby become more able to discriminate in the absence of such knowledge.

close to the *S*'s ear and held under the third finger of this extended "pain insensitive" hand long enough to produce painful heat without causing a second degree burn. The experimenter tested the time interval on himself each time in order to determine what constituted a safe but painful stimulus. In no instance was an *S* ever subjected to a blistering burn. Again it was found that there were no noticeable differences between the simulating group and the deeply hypnotized *S*s. However, postexperimental inquiry revealed that the simulating group experienced a high level of anxiety and some pain during the procedure, while those in trance felt little or no discomfort.

To summarize the results of these informal experiments with pain, no clear-cut behavioral differences between "real" and "fake" *S*s have as yet been found, no matter what type of stimulus was employed. However, on post-experimental inquiries a very real difference was found in the *S*'s attitude toward this part of the experiment and in his report of subjective pain.

DIFFERENCES BETWEEN "REAL" AND "FAKE" SUBJECTS

The faking *S*'s condition is characterized by the presence of faking behavior and the absence of hypnosis. If we wish to regard true hypnotic behavior as the difference between what can be observed in faking and real *S*s, it is necessary to take into account the characteristics of the faking *S*s introduced by the act of simulating.

One of the observed differences is related to an attempt by the simulating group to avoid commitments whenever possible. In some aspects, the situation of the simulating group is analogous to that of the malingerer, although the motivation to malinger is different and usually stronger. The person who is simulating a disease attempts to give the appropriate behavioral and symptomological manifestations without subjectively experiencing the symptoms that would be present with the actual disease. The real hypnotic group is more akin to the hysteric who reacts to subjectively real symptoms without organic pathology. Rorschach studies on malingerers in the military service (Rosenberg & Feldberg, 1944; Ross, 1944) reveal a typical syndrome. The most significant aspect is a marked constriction of the record, with occasional bizarre responses, a feature that is understandable as an attempt to avoid giving oneself away in the face of an unknown situation while attempting to appear cooperative. Applied to the present situation these features suggest a tendency for the simulating group to avoid responding whenever possible and when forced to respond in an unstructured situation to give the safest possible answer. Just this occurred. In the replication of the Ashley, Harper, and Runyon study, it was observed that the "faking" *S*s would tend to be more hesitant in giving a false life history after being told that they were rich or poor.

This reluctance cannot be considered a particularly meaningful finding for the theory of hypnosis, since it should rather be attributed to the psychological situation analogous to malingering, and not to the presence or absence of hypnosis.

Differences observed which may be attributed to the presence or absence of trance were with respect to: (*a*) congruence, the appropriateness of a response to the apparent level of trance, and (*b*) trance logic, the apparently simultaneous perception and response to both hallucinations and reality without any apparent attempts to satisfy a need for logical consistency.

The "fake" *S*s tended to exhibit behavior that was incongruous with what clinically appeared to be the depth of trance. For example, an *S* who responded very slowly to hand levitation was given the suggestion that he could hear only my voice. This negative auditory hallucination was tested by rubbing the thumb against the first two fingers of the hand close to the *S*'s ear and asking him "do you hear anything but my voice?" A response congruent with the *S*'s behavior of slow hand levitation and in a medium trance would be either no response or a *slight* nod or shaking of the head. Frequently, a repetition of the question would be required to elicit even a nod of the head. An *immediate* and emphatic *verbal* denial of any auditory perception other than my voice was considered a typical incongruent response--incongruent both in respect to speed and modality of response.

The most reliable criterion, as it turned out, may be termed trance logic.[9] It refers to the ability of the *S* to mix freely his perceptions derived from reality with those that stem from his imagination and are perceived as hallucinations. These perceptions are fused in a manner that ignores everyday logic. A good example of this process is the reaction of many *S*s in hypnosis who see a hallucination of a person sitting in a chair and describe it as "This is very peculiar, I can see Joe sitting in the chair and I can see the chair through him." This type of reaction, when made spontaneously, was absolutely diagnostic of the "real" *S*. Unfortunately, it did not occur spontaneously in every *S*; it was found, however, that "fake" *S*s *never* gave such a response.

In order to obtain the same type of data that had proved to be so characteristic of hypnosis, a special situation was devised. Throughout the experiments, one of the co-experimenters was in the room with the *S* and the author, taking notes. At the beginning of the experiment he sat to the side of the *S*, well within his visual field. Once the *S*'s eyes were closed, the co-experimenter rose very silently and walked behind the *S*

[9] This seems intimately related to primary process thinking or autistic thinking. To avoid the developmental, pathological, and theoretical implications of these concepts a new phrase seems preferable to describe the clinically observable phenomenon.

out of the *S*'s visual field. Subsequently, the *S* was instructed to open his eyes while still in deep trance and a hallucination of the associate sitting in the chair was induced. This hallucination was facilitated by the fact that during the initial part of the experiment, just prior to the *S*'s closing his eyes, the associate was actually sitting in the chair. After the hallucination appeared to be fully accepted by the *S*, and he appeared to be responding to the hallucination as though it were actually the associate, he was instructed to turn around and look at the associate now behind him with the question, "Who is that behind you?" Almost invariably the "real" *S* would look at the associate, then quickly turn back to look at the empty chair, and back at the associate. After looking back and forth between the hallucinated and the "real" associate, the *S*s indicated verbally that they were perceiving two images of the same person.[10] When asked about this, they tended to give bland responses such as "mirrors" or a "trick." Though they seemed somewhat confused, they did not become seriously disturbed.

The "fake" group, in most cases, either refused to see anyone behind them, or claimed that they could not recognize the person. Occasionally, they admitted recognizing the associate behind them and then claimed that the hallucination had vanished. (This reaction, while unusual among the real group, is occasionally found, especially if the *S* did not fully accept the initial hallucination.) Of approximately 30 "faking" *S*s, only two acted as if they saw two images of the same individual. The others, when asked during postexperimental inquiry about the reason for their response, gave a very significant answer. They stated that I had instructed them to hallucinate the associate in the chair and therefore, when I asked who the individual behind them was, they had to deny seeing him, or if they saw him, recognizing him. After all, there was only one such individual and I had already told them that they were supposed to see him sitting in the chair. This logical conclusion determined the response given by simulating *S*s; it did not occur to the overwhelming majority of the "real" *S*s who saw two images without any difficulty. This finding appears to represent a valid and significant difference. The "real" *S* responds to a subjectively real image of the associate in the chair. When asked about an objectively real image of the same individual, he is able to perceive this as well. He can respond to perceptions that are subjectively real and determined by the suggested environment, as well as to his actual perceptions of the real world, without attempting to satisfy a possible need to make them logically compatible. The absence of expression of a need for logical consistency seems, at this point, to be one of the major characteristics of hypnosis.

Because it is my belief that the "essense" of hypnosis will be found

[10] This situation was originally discussed by Milton H. Erickson in a personal communication.

in the subjective experiences of the *S*, I have become increasingly interested in a series of techniques attempting to obtain data about the actual feelings and experiences of the *S*. In the future, I intend to develop inquiry procedures that will include "causal conversation" with another *S* who, in reality, is an investigator. It is hoped to elicit cooperation from the *S*'s friends. Casual preliminary attempts using such procedures indicate that material obtained in this way may be quite illuminating and not accessible to direct inquiry by the experimenter.

A Point of View toward Hypnosis

While much of the research described here appears to be explaining away the hypnotic phenomenon, the intention is rather to differentiate its valid and significant aspects from what might be termed artifact. One of the problems inherent in any study of hypnosis is that of its definition. There is high consensus of opinion about what constitutes hypnosis in terms of a variety of scales. However, the essential characteristics have remained obscure. A great many investigators have become impressed and fascinated by the apparent transcendence of normal physiological capacities in hypnosis. The present research program has made me increasingly skeptical of the experimental data that purport to support this view. However, clinical data obtained both by others and myself seem to show in a dramatic way that responses can be evoked in some *S*s which they themselves could not perform voluntarily. Such phenomena seem to be limited to *S*s who have a peculiar disposition in this direction. For example, authenticated cases of hypnotically induced blistering have been achieved only in individuals with previous dermatological histories.

One might hypothesize that the capacity to produce marked physiological alterations in hypnosis is confined to persons who have a readiness to somatize in the organ system being investigated, which will usually have been demonstrated by a history of similar pathology occurring spontaneously. Such findings do not preclude the possibility, of course, that a transcendence of normal volitional capacities in some areas may eventually be established in the laboratory as unequivocally due to hypnosis.

Aside from the controversial issue of such changes in physiological capacities, it appears that a universal effect of hypnosis on any *S* in deep trance can be delineated in terms of his subjective experience. Experience, after all, is not to be taken as an ephemeral or unimportant aspect of hypnosis but, rather, as extremely significant and, to the *S*, dramatic and striking.

Any *S* who has experienced deep trance will unhesitatingly describe this state as basically different from his normal one. He may be unable to explicate this difference, but he will invariably be quite definite and certain about its presence. Thus, one of the characteristics of hypnosis is that

in deep trance the *S* experiences the state as discontinuous from his normal waking experience (though not always in the intermediate stages of trance). Hypnotic trance differs from pathological states, which may also be discontinuous, in that the *S* enters and leaves the state in accordance with previously established "rules of the game."

Another aspect of this altered subjective state is one which the *S* describes as an inability to resist a cue given by the hypnotist. (Interestingly enough, if the *S before entering the trance* decides not to follow a specific suggestion he is able to resist it.)[11] The uniformity with which this compulsive quality is reported tends to make us accept it as a characteristic of hypnosis. However, it will not emerge as a difference in behavior between real and faking *S*s.

Finally, an important attribute of hypnosis is a potentiality for the S to experience as subjectively real suggested alterations in his environment that do not conform with reality. In trance, the waking distinction between an imagined idea and what is perceived externally to the organism fades, and images may be perceived as originating from external reality. Thus, the waking individual, no matter how hard he tries to imagine that he saw someone sitting opposite to him, might at best be able to evoke some kind of imagery but would always be aware of the distinction between this and reality. The *S* in deep hypnosis may well be unaware of the distinction, though at some level he will always be able to discriminate.

In sum, the principal features of the hypnotic state are seen as changes in the subjective experience which are characterized by (*a*) discontinuity from normal waking experience, (*b*) a compulsion to follow the cues given by the hypnotist, (*c*) a potentiality for experiencing, as subjectively real, distortions of perception, memory, or feeling based on "suggestions" by the hypnotist rather than on objective reality, (*d*) the ability to tolerate logical inconsistencies that would be disturbing to the individual in the wake state.

Summary

This paper has attempted to delineate some aspects of hypnotic phenomena which can be rigorously tested and established. The hypothesis that the subject's "knowledge" regarding behavior in hypnosis influences his own hypnotic behavior was supported by an experiment. Students were exposed to a demonstration and lecture on hypnosis in which catalepsy of the dominant hand was mentioned as a common feature of trance behavior. Five out of nine volunteers exhibited this phenomenon under

[11] However, suggestions that are inconsistent with the basic "rules of the game" governing the implicit contract between hypnotist and *S*, as seen by the *S*, are, as a rule, not followed: e.g., antisocial and self-destructive acts, or any other suggestions running counter to basic ego needs or superego inhibitions.

hypnosis. No students in a control group, who were given a similar lecture and demonstration but with no mention of catalepsy, showed the phenomenon.

An experiment performed by Ashley, Harper, and Runyon, which depends on hypnotic amnesia to explain the results, was repeated with the inclusion of a control group of subjects. These were subjects who simulated hypnosis but who were otherwise exposed to the same experimental situation as the hypnotic subjects. The behavior of the simulating group was indistinguishable from that of the "real" group, and both were indistinguishable from the results of the original study. Some doubt is thus cast on an explanation of the results in terms of hypnotic amnesia, and support is lent to the hypothesis that the demand characteristics of the experimental procedure may be a significant determinant of subject behavior.

In another experiment it was found that motivated subjects in the wake state held a weight at arm's length for a longer period of time than they did while in the hypnotic state. This result casts doubt on the notion that enhanced physical capacity is a primary characteristic of the trance state.

Differences between "real" and "fake" subjects were investigated. The major difference appears to be a tolerance by the "real" subject of logical inconsistencies.

It was concluded that in the absence of objective indices of hypnosis the existence of trance may be considered a clinical diagnosis. Until an invariant index of hypnosis can be established, such a diagnosis must be confirmed by the subject's report of alterations in his experience, since the real focus of hypnosis appears to lie in the subjective experience of trance.

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4

'Credulous" and "Skeptical" Views of Hypnotic Phenomena: A Review of Certain Evidence and Methodology



J. P. Sutcliffe

A traditional opposition runs through the many viewpoints about the nature of hypnosis. It began with Mesmer and Benjamin Franklin (Binet), repeated itself with Elliotson and Braid (Bramwell 1906) and again with Charcot and Bernheim, and finds its modern form in the views of Erickson (LeCron) and White. What might be called the "credulous" view takes the hypnotic subject's testimony on faith. For example, it is suggested to a subject in trance that a blank card is a photograph of a person's face; if the subject says that he can see the face and goes on to describe its detail, the "credulous" view is that in some sense the subject does "see." The perceptual process is assumed to be akin to that which is produced by an actual set of stimulus conditions. Erickson (1937) is quite explicit in his view that hypnotically produced "unconsciousness," "deafness" (1938, 1944), "colour blindness," and "after-images" (1938) are like the naturally occurring organic conditions. In oppositon there are

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those who doubt the subject's testimony and contend that he actually perceives the situation as it is while acting as if it were as suggested by the hypnotist This might be called the "sceptical" point of view; and White's position is of this sort. The "credulous" and "sceptical" viewpoints diverge on certain questions of fact, particularly on that of the subject's perceptions, and it is of interest to take stock of the large body of pertinent evidence which has been accruing. This must be considered in light of criteria of admissible evidence. This paper examines the minimum requirements of experimental control in hypnotic experimentation, and reviews evidence from studies of hypnotically produced aesthesias; auditory, visual and temporal hallucinations; regression; and anti-social behaviour.

Methodological rigor has not been characteristic of studies of hypnosis. The works of Young (1926) and Hull have historical significance and have influenced the development of the subject because, contrary to earlier and some subsequent work, they paid due attention to experimental requirements. An analysis of successful and unsuccessful investigation through the history of hypnotism reveals a minimum set of requirements for any given experiment to be conclusive. Unfortunately as many recent studies fail in this respect as did early ones. Thus it will aid in the evaluation of evidence to set down the controls necessary in an experiment on hypnosis.

Young (1926) was perhaps the first to show that hyprotic behaviour must be compared with "normal waking behaviour" if causation is to be attributed to hypnosis. Without this comparison one cannot show that hypnosis has any effect, and it is a mistake to attribute automatically any given behaviour that occurs in trance to hypnosis; it may occur as readily without. For example, Young's subjects in trance were remarkably acute in discriminating postage stamps but they performed as well in the waking state; thus hypnosis was not the cause of the performance, and the latter was remarkable only because of its novelty. It may seem obvious to use waking controls, but many studies of hypnosis fail to do so.

The form of the waking control is important. If the one subject is used in the trance and waking states there is the general problem of transfer effects and a further problem peculiar to hypnosis. Pattie (1933) shows how the subject may bring the trance and waking performances into consistence with the relationship expected by the hypnotist or demanded by the subject's own situation. (See also Orne, 1959). For example, if the subject in the waking state is asked to simulate his previous trance performance, to do so successfully would be tantamount to an admission that his trance behaviour was simulation; accordingly he may perform in a way different from the norm for "waking," and in a way which he anticipates the hypnotist to expect. Pattie points out that there is difficulty also with the reversed order of experimentation, as the subject may gain experience in a control session which can facilitate successful simulation in a subsequent trance. Accordingly, independent subjects are needed for

waking and trance groups unless the situation is such that the subject is not compromised, is not aware of the hypnotist's expectations, or such knowledge cannot affect the waking performance. Few studies use independent waking controls.

Where independent controls are used, it is necessary that the trance and waking groups be comparable. This is not always ensured, especially when the waking controls are made up of the most readily available subjects. The trance group will be highly selected for hypnotizability, whereas a haphazardly selected waking group will be at least more heterogeneous. Not uncommonly it will be made up of recalcitrant or nonhypnotizable subjects met with in the selection of trance subjects. This leads to a confounding of subject differences with the trance-waking comparison. What is needed is a homogeneous pool of hypnotizable subjects from which two independent random samples may be drawn, one to be the trance group, one the waking control. Little attention has been paid to sampling procedures in hypnotic experimentation.

The condition "hypnosis" itself can be analyzed at least into (i) the trance state or result of induction procedures, and (ii) trance behaviours in response to suggestions given after the trance is achieved. Induction procedures may operate independently of the experimental trance suggestions to affect the dependent variable. For example, slower performance on a timed task may be due to trance suggestions or quite independently it may be due to the use of sleep suggestions in the induction of trance. To control for this possibility one would need two comparable but independent trance groups, one to perform the experimental task in trance with experimental suggestions, the other to perform the experimental task in trance but without the experimental suggestions. Few studies utilize this distinction in their design.

The hypnotist may be a source of systematic error. One example of this pertains to the extent to which the hypnotist's investment in a given experimental outcome is implicitly communicated to the subjects such that the way the results come out is unwittingly arranged (Orne, 1959 for a discussion of the problem of "demand characteristics"). Replication of experiments with independent hypnotists is desirable. One other variable of some relevance is the subject, specifically his hypnotizability. Failure to demonstrate a phenomenon with a non-hypnotizable subject does not show that it will not occur with a hypnotizable subject, and so both types of subjects should be used. Related to this is the question of the time and care taken with induction procedures (Erickson in LeCron, 1952). In addition to these various general considerations, in any given experiment there will be needed certain specific controls. These various criteria will be used in the evaluation of evidence which follows.

Studies of Esthesia

Almost all studies in this area have concerned hypnotic anaesthesia. Anaesthesia as a spontaneous (rather than a suggested) feature of hypnosis was recognized quite early in the 19th century; and Esdaile, Elliotson and Braid all made use of it for surgical purposes (Bramwell, 1906, Ch. ix). Bernheim (p. 116) cites isolated cases of major amputations and says . . . "In spite of these fortunate trials, surgeons soon showed that hypnotism only rarely succeeds as an anaesthetic, that absolute insensibility is the exception among hypnotizable subjects, and that hypnotizing itself fails in persons disturbed by the expectation of an operation." The Paris Commission of 1837 (Binet, p. 43) had noted that ". . . the subject of the experiment was as insensible to pinpricks before the supposed sleep as when it occurred." This raises the possibility in the absence of waking controls on surgical work that "hypnotic anaesthesia" is irrelevant to the subject's insensitivity. That particular individuals undergo surgery, have teeth pulled or drilled, and give birth apparently without pain while hypnotized is not in itself evidence that anaesthesia has been produced by the hypnosis. Such subjects may be generally insensitive to pain through heredity, the effects of progressive disease, etc. What are needed to clarify the significance of these sorts of observations are norms for waking sensitivity to various kinds of painful stimuli as applied to different areas of the body.

Experimental evidence on hypnotic anaesthesia can more readily be brought to bear on the "credulous" versus "sceptical" issue. Levine investigated hypnotic anaesthesia using *S*'s report of pain and the GSR as a physiological indicator. He noted that hysterical patients give the GSR to painful stimulation of "anaesthetic" areas. Using a veni-puncture needle through the skin of the forearm, he found that the hypnotically anaesthetic subject reported no pain but gave the GSR just as did the hysteric. Dynes measured the respiration, heart rate and GSR of six subjects in response to pinch and pinprick in the waking state and with hypnotic anaesthesia. He found that while respiration was slower in hypnosis, there were no differences between the states for the other measures.

Sears using seven subjects measured facial flinch, reflex leg withdrawal, respiration, pulse and GSR in response to a barb forced against the calf of the leg. Subjects were tested in the waking state and in hypnotic anaesthesia, and subsequently were requested to voluntarily inhibit pain reactions in the waking state Hypnotic anaesthesia produced marked reduction in facial flinch and verbal report of pain—both subject to voluntary inhibition. Some differences were noted for the remaining measures, but when individual reactions were examined there was found no uniformity of response to favour hypnotic anaesthesia and the overall mean differences are attributable to an occasional subject in each case. Larger samples would

be required to establish a reliable trend. The GSR difference is negligible. While the subsequent "voluntary" inhibition of pain reaction in the waking state was not as successful as the hypnotic anaesthesia, these results are suspect in terms of Pattie's (1933) criticism. Sears himself points out that non-inhibition of facial flinch suggests that the subjects did not really try to inhibit the pain reaction in this experimental condition. With an independent control group the results could well have been otherwise (Orne, 1959).

Brown and Vogel followed up a suggestion of Hull for a comparative study of chemical and hypnotic anaesthesia. With three subjects they measured blood pressure, pulse, respiration and GSR in reaction to both sharp and continuing pain. They found that hypnotic anaesthesia is not as successful as chemical anaesthesia in reducing pain reaction; that, while hypnotic anaesthesia served to reduce the various reactions, waking simulation was just as successful (see also Orne, 1959). Most recently West et al. measured the GSR of seven subjects in response to four degrees of radiant heat. They compared the subject's waking reactions to pain with reaction under hypnotic anaesthesia, and they found for individual subjects reduction of from 26 to 67 per cent in GSR. The data as reported do not show the effects of the different degrees of pain, and furthermore it can not be determined whether the reductions were other than adaptation effects.

Pattie (1937) studied anaesthesia to touch. The task was for a blindfolded subject, with his hands in position for the Japanese illusion, to count the number of times the left hand was touched by *E*, the right hand being "hypnotically anaesthetic." A group of 15 "normal" subjects established the basal count for comparison with the results of an independent group of 5 "trance" subjects. If truly anaesthetic, the trance subjects would perform better than the norm for waking performance. While the results showed differences in the right direction for the first two trials, the overall trend for 10 trials is almost identical for the two groups. As the actual number of touches made by the experimenter is not reported proportional error cannot be gauged and the relative magnitude of the initial difference is unknown.

In summary: All experiments reveal at least some reaction to stimuli for which hypnotic anaesthesia is said to hold. Most experiments reveal some reduction in reaction to stimuli with hypnotic anaesthesia when the latter is compared with the "normal" reaction. Reduction is greatest with reactions subject to voluntary control, and least or non-existent with autonomic functions such as the GSR. However, voluntary inhibitions seems to be as effective as hypnotic anaesthesia in achieving such reductions. Such disagreement as exists amongst the studies may be due to method. The need for larger samples and for independent waking controls is apparent. Standardization of measurement procedures could eliminate other differences. In general these data do not support the "credulous" view that by hypnosis

there can be produced a genuine absence of painful sensory content insofar as this is indicated by behavioural reactions. The puzzle remains that hypnotically anaesthetic subjects report in many cases that they feel no pain. Future research might well be directed to resolving this discrepancy between the evidence of bodily reaction and reported subjective experience.

Studies of Hallucination

Auditory

In this area studies almost exclusively concern hypnotic deafness, the negative auditory hallucination Exceptions dealing with positive auditory hallucinations are (Lundholm, 1928, 12, Sterling)

From the observation that a hypnotic subject appeared deaf to all but the hypnotist's voice, it was but a short step to the suggestion of deafness Bernheim (p 30) wrote . . "I induce deafness The subject says that he hears nothing He answers nothing and does not react to the most deafening noises" He goes on to point out a puzzling feature of the subject's behaviour (p 50) "I say to a somnambulist who has been hypnotized 'When you wake you will not see me, you will not hear me, you will be deaf and blind' I wake him; I speak to him and whisper in his ear He does not show any sign of understanding: his face remains inert If I then say to him decidedly, perhaps once or several times. 'You hear again', his face shows great astonishment, he hears and answers me It is in vain that I say 'You must have heard me all the time, since your pretended deafness vanished when I assured you that you again heard me' "

In the modern period, Lundholm (1928) set a pattern for experimental work on this problem He sought to condition finger withdrawal to an auditory stimulus for which deafness had been suggested in trance He found an absence of response under these conditions; and also, when deafness was induced for a CS to which the subject had already been conditioned, the conditioned response disappeared Lundholm noted that the subject's responses in these cases were unlike ordinary conditioned reponses and were more like voluntary inhibitions.

With non-voluntary responses, hypnotic deafness is not sufficient to abolish the usual reaction to noise Dynes found no significant difference in GSR to a pistol shot from the waking to the hypnotically deaf state. Brown and Vogel (p 420) make the incidental comment: "Suggested deafness does not abolish physiological reactions to auditory stimuli." Lundholm and Lowenbach investigated the alpha rhythm of the EEG and found it to disappear with noise whether the subject was in the waking state

or hypnotically deaf; while it continued with quiet whether the subject was awake or positively hallucinating a noise. Sterling and Miller found no evidence that hypnotic suggestion increases auditory acuity.

Pattie (1950) investigated the possibility of inducing unilateral hypnotic deafness. Of 12 trance subjects, 4 reported that they could not hear a tone presented to the "deaf" ear. To check, two tones one to each ear were presented simultaneously but at slightly different frequencies. Under these conditions if the subject hears with both ears he will perceive beats; if he hears with only one ear he will perceive a single tone. All four "deaf" subjects reported hearing beats, 2 of them on all occasions, and 1 erratically with single tones reported for the remaining occasions, and 1 initially but thereafter switching to consistent report of a single tone.

Erickson (1938, 1944) has claimed positive results. In the first study he began with 100 college students of whom 70 were found to be capable of . . . "the more stuporous trance and the profound somnambulistic state as contrasted with ordinary deep hypnotic sleep." Of these he used 30 who were "trained" until . . . "it was possible to secure the stuporous trance and the somnambulistic state within 10 minutes. On a given day, 20–40 minutes were used to induce deafness, whereupon a number of clinical tests of deafness were applied. He contends that 6 subjects were totally deaf and 4 partially deaf on the evidence of these tests. Some of the subjects were asked to simulate their deafness in the waking state but they did not duplicate their trance performances. He concluded . . . "That the clinical tests employed, despite their variety and directness or indirectness, were entirely adequate to detect complete absence of response is open to question; but the extensiveness of the auditory changes cannot be doubted. The conclusion is warranted that there was produced a condition not distinguishable from neurological deafness by any of the ordinary competent tests employed."

In a follow up study, Erickson (1938) used four of the subjects who had exhibited "complete deafness" on the clinical tests and conditioned finger withdrawal to shock (UCS) to a buzzer (CS). Having tested for the presence of the CR, he then induced deafness and gave a further test for the CR; in the latter case it was found to be absent. With "deafness" removed the CR was found to reappear. In a not strictly comparable situation when awake the subjects were not able to inhibit the CR.

Following observations (Malmo, 1952) on an hysterically deaf subject, Malmo et al. (1954) made an investigation along Erickson's lines with "hypnotic deafness." The hysterical subject had shown some evidence of startle to loud noises, and of increased muscular tension in a conditioned finger withdrawal set up. That is, the subject was hearing sounds but he was not responding to them in the normal way—a distinction discussed by Erickson (1944). Malmo et al. then used two hypnotic subjects in whom deafness was induced via Erickson's procedures. These subjects were

compared with an organically deaf control subject. Changes in the electrical potential of the muscles were recorded in response to loud tones. The "hypnotically deaf" subjects initially gave strong reactions to the tones which reactions subsequently decreased. The decrease is a normal habituation effect. Simulated deafness in the waking state was not as successful as hypnotic deafness in reducing reaction. Eyeblink in response to auditory stimuli was present with all subjects in all test situations.

A third study of this sort by Kline et al. (1954) provides similar results with a different method. One subject, while awake and while hypnotically deaf, read aloud under conditions of delayed speech feedback. The effect of trance per se was checked by having the subject read without delayed feedback in the trance and in the waking states. They found evidence of resistance to feedback distraction, although the hypnotically deaf performance was not comparable to performance in the absence of distraction.

In summary: While there is more diversity of findings with "hypnotic deafness" than with "hypnotic anaesthesia" the general impression is the same. The presence of autonomic reactions similar to those found in the waking state indicates that the subject does perceive the stimuli for which hypnotic deafness is alleged. Where inhibition is noted, the inhibited response is also subject to voluntary control in the waking state. Differences in degree may be explicable in terms of motivation (Orne, 1959) and failure to use independent waking controls. While Erickson's (LeCron) contentions about depth of trance may apply to a number of studies, this is not true of (Kline, 1954; Malmo, 1954); and Erickson's own studies are open to criticism on several grounds; (i) no quantitative data are presented and conclusions are drawn from a single illustrative conditioning record; (ii) his conditioning set up involved simultaneous presentation of CS and UCS, and as with Lundholm's (1928) earlier study a "voluntary" CR, both of which features make it doubtful that conditioning proper occurred; (iii) the bias arising from the selection and training of his subjects is an unknown. Thus while Erickson's findings are at variance with the general trend, they are not conclusive and a repetition of his study with appropriate controls would be needed before the "credulous" viewpoint could be sustained.

Visual

Four areas of investigation may be distinguished—positive and negative hallucinations involving vision generally and colour vision. The general material will be considered first.

While Braid (Bramwell, 1906) was aware of suggested visual hallucinations, the first experimental work was conducted by Binet (1887) working on Fere's assumption that . . . "the imaginary object which figures in an

hallucination is perceived in the same way as a real object" He investigated this notion with optical methods pressure on *S*'s eyeballs to give double image, interposition of opaque objects, prism, opera glasses; mirror In general the subject would hallucinate an object on a plain surface and would report the behaviour of the object under optical distortion Binet often found that the subject's response was in accord with the behaviour of real objects, and he concluded that hallucinations are associated with (real) points of reference which are subject to optical laws

Bernheim (p 99ff) also investigated this problem and showed that hallucinations are independent of particular points of reference, though the latter may be used as cues to an "appropriate" hypnotic response He took the precaution of using naive subjects and worked in silence to minimize their knowledge of his expectations He had subjects hallucinate in free space—the sky or in the dark and in these cases Fere's formula breaks down Incidental to Binet's enquiry was the observation that subjects can make use of minute cues, e g , to recognize one of a set of blank cards, and it was thought that hypnosis increased visual acuity Young (1926) using the appropriate waking controls found no advantage of hypnotic over waking performance at discriminating postage stamps Sterling and Miller and Eysenck confirmed this finding, while Weitzenhoffer (1951) varying task difficulty found some advantage for the hypnotic state The latter did not use independent waking controls

Concerning negative visual hallucinations, Bernheim (p 47) described a test devised by Stocber to detect "physical blindness ' It uses red and green filters in the perception of mixed red and green letters Bernheim found that hysterical and hypnotic blindness were distinct from neurological blindness, naive subjects reading the letters indiscriminately In 1933 Pattie tested five subjects for hypnotically suggested uni-ocular blindness with filters, stereoscope Flees Box, opthalmological tests plot of the blindspot Two subjects rejected the suggestion of blindness, and of the three who accepted it, one reported blurring of vision and the other two claimed inability to see Four failed the tests The fifth was investigated further and finally failed on a complicated filter test Investigation led to the subject revealing methods whereby (although seeing) she had managed to perform on the tests as if blind

Dorcus found no modification of the pupillary reaction to light with suggested blindness On the other hand, Loomis, et al reported EEG activity in suggested blindness akin to actual blindness The subject's eyes were taped open, and it was suggested in trance that the subject would be blind and sighted at alternate 15 second intervals Alpha trains occurred when *S* was blind and disappeared when he was sighted There was no waking control on *S*'s performance Lemere points out that EEG activity is not alone affected by visual stimulation . "a uniform visual field of

light or dark, or even a field containing blurred indefinite outlines, usually does not interrupt the alpha rhythm" . . . "a few people do not have the alpha rhythm with the eyes open or shut." What is required for the disappearance of alpha rhythm is active novel stimulation such as where *S* examines and describes some object. In light of these points, Loomis' study would need repetition with more subjects. Lundholm and Lowenbach with three subjects studied hypnotically induced positive and negative visual hallucinations. All subjects showed marked alpha activity in a control session; and there were no individual differences when visual stimuli were presented—the alpha rhythm disappeared. In the "hallucinated" states the EEG responded to the real state of affairs rather than to the state suggested: alpha disappeared when new stimuli were introduced; and alpha continued in the absence of novel stimuli even though their presence was positively hallucinated.

In summary: With one exception these findings are in accord with the impression gained in foregoing sections. The data show the subject to be acting as if he were able to see a non-existent object, or blind to a real object; and there is little to support the "credulous" view that the subject has the appropriate sensory content.

Work on colour vision anomalies also has a long history. Following studies by Parinaud (1882) on chromatic contrast with hallucinated colours, Richet, Binet and Fere (1884) investigated the possibility of after-images to hallucinated colours and (Binet, 1887, p 252-3) . . . "ascertained that hallucinatory vision is subject to the same conditions (as normal vision); every hallucination of some persistence is succeeded on its disappearance by an after-image, just as in the case of ordinary sensations which affect the retina." The method used could be responsible for their results. They wrote (p. 254) . . . "to ensure success, care must be taken to define the nature of the suggested colour. For instance, if only the colour *red* is suggested, the subject may either see the shade of red of which green is the complementary colour, or the orange-red of which blue is complementary. These contradictory results are impossible when the colour which the subject is intended to see is made clear by a comparison." While it is necessary to specify a particular colour, this method is unsuitable in that it gives the subject an opportunity to discover the exact after-image required by looking at the real comparison colour. Bernheim used naive subjects and took care not to reveal what was expected and in this case the results were negative

Binet and Fere also claimed to have observed complementary after-images to vivid waking images. If this were so, hypnotic suggestion would facilitate rather than initiate their occurrence in trance. To check this claim, Downey studied the imagery of a group of trained introspective observers. She found considerable individual differences in after-images to *real* stimuli.

She tried "a great many subjects" without finding after-images to mental images. One subject, in her opinion, showed some evidence of a positive kind; but this case is not conclusive.

In the modern period, Dorcus suggested to a subject that certain real colours were some other colours, e.g., red was said to be green. In all cases the after-images reported were those appropriate to the real stimuli used rather than to the colour suggested. It is conceivable that real sensory processes suppress hallucinatory activity, so that this study does not constitute conclusive negative evidence.

The first extensive investigation of after-images in the modern period is that of Erickson and Erickson (1938). Five college students previously used for hypnotic work were the subjects. Their associations to the words "red, green, blue, yellow, bright" were checked in the waking and trance states. Trance induction took 30–45 minutes. In trance *S* was shown in turn 16 blank white sheets which, *E* suggested, were brightly coloured. *E* was to name the first, *S* the second, *E* the third, and so on. *S* was told that the colours he would see and name would be different from those named by *E*. *S*'s after-images to real colours were also obtained, and he was questioned to determine his knowledge of the laws of after-images. The results: There was no evidence of word association along complementary colour lines. Questioning of *S*s was said to reveal ignorance of after-image processes. *S*s gave negative after-images to real colours. For the hypnotic hallucination situation (p. 583 . . . "The 4 subjects who hallucinated the specified colour invariably declared the succeeding sheet to be the appropriate complementary colour."

The authors explain the result in terms of association: a real stimulus leads to a perceptual process which in turn leads to an after-image; when the percept is revived as an image it again leads to an after-image. The following criticisms may be made: (i) the results of the word association tests are not consistent with their explanation; (ii) with college students it is difficult to ensure complete naiveté about after-images, and the *S*s being "trained" may have concealed knowledge from *E* (cf. 55); (iii) although *S* was allowed 1 to 2 minutes to "hallucinate" a colour specified by *E*, the latency of *S*'s response to his own blank is not reported; this is relevant in that *S* may have had opportunity to look at other coloured objects in the test room and thereby discover their after-images (cf. 5); (iv) terms such as "bright red" are ambiguous, as Binet and Fere pointed out; there are individual differences in after-images to a given real colour; both of these factors would lead one to expect variability among the subjects, yet uniformity of correct response is reported. All told, these observations suggest that a tenable explanation of the results is that the subjects responded in terms of a knowledge of complementary after-images possessed in advance or obtained during the experiment.

A more extensive investigation by Hibler led to the conclusion that (p.

56) "there is no evidence that hallucinations produce any cerebral or sensory changes in the organism which cannot be explained in terms of mere verbal agreement, and cooperation with the experimenter." While his experiment has certain procedural advantages over the Ericksons' study, it also has several important weaknesses which Erickson (1941) has pointed out: (i) The adequacy of hypnosis is doubtful, the instructions being brief and direct and the whole procedure taking but five minutes. (ii) The subjects were aware of the laws of after-images. Hibler's reply, while pointing to weaknesses in the Erickson set up, does not rebut these criticisms.

Most recently, Rosenthal and Mele found positive results with four deep trance subjects. While their experiment differs in detail from the Erickson study, the general design was similar and the criticisms (ii), (iii), (iv) directed against the latter apply equally to the Rosenthal and Mele study. At this stage the "reality" of after-images to hallucinated colours cannot be said to have been established. Future experiments might concentrate on naive subjects such as children and be conducted in wholly achromatic settings.

Negative hallucinations for colour seem not to have been studied before Young's incidental test of the effect of suggested colour confusion on the Holmgren Woollens Test. The first experiment was that of Erickson (1939). He used four female and two male subjects all of whom had been used regularly in hypnotic work The subjects had "normal" colour vision on the Ishihara Test. The procedure was as follows: trance induction; suggestion of complete colour blindness; awakening of *S* with post-trance blindness so that he would experience distress; reinduction of trance and partial restoration of vision; induction of amnesia for ideas and connotations of the negatively hallucinated objects; performance of the Ishihara separately under conditions of red, green, red-green, and total blindness; performance on the Ishihara without suggested blindness in the trance and waking states. The results were: (i) *S*s had "normal" colour vision on the Ishihara in the "waking" and "trance" states when no blindness was suggested. (ii) When colour blindness was suggested, the *S*s were . . . "unable to see" the numerals for which they were "blind." Erickson concluded that . . . "the findings demonstrate clearly that cortical processes and activities can effect results similar if not identical with those based primarily upon peripheral activities and conditions."

A number of considerations, however, raise doubt that *S*s "experienced" colour blindness, and an alternative explanation of their responses may be sought. Grether points out that Erickson's conception of colour blindness is mistaken. Ishihara's "red," "green," and "red-green" blindness should not be taken literally. Red-green blindness means, not blind for red and green, but confusing red and green; and the Ishihara "types" refer to theories of receptor deficiency in the 3-colour theory of vision. As Grether says (p. 208): "In both types of red-green blindness the actual deficiencies

in colour sensation are quite different from those Erickson attempted to induce in his subject." Accordingly he asked "How then can we account for the fact that many of the hypnotically produced colour blind subjects read the chart in the same manner as do subjects with true red-green blindness?" In reply, he says that, because of the way the Ishihara plates are made they would not discriminate the orthodox Ishihara types from Erickson's pseudo-types. Grether was not concerned with the "genuineness" of the sensory content, but he wished to show that Erickson, if he achieved any effect, did not produce colour vision anomalies of the sort that occur naturally.

Erickson's subjects were said not to be able to simulate colour blindness in the waking state. However, normal subjects can with scrutiny and certainly with practice come to pick the anomalous responses. (Erickson's subjects performed the test 13 times in all.) The need for independent normal controls for this experiment is obvious. Erickson gives no data on the rate and duration of exposure of the Ishihara plates, and no data on the latency of *S*'s responses. It is possible that the responses were achieved by deducing the anomalous response rather than actually "seeing" in the manner of a colour blind person.

Although Harriman (1942a) says he wishes to check on the validity of Grether's comments on Erickson's work, he commits the same error of taking the word "blind" literally. He follows Erickson's procedure in detail, finds the same sorts of result, and is open to the same criticism. Subsequently, in line with Grether's comment, Harriman (1942b) repeated with the experiment with . . . "instructions appropriate to induce colour vision anomalies," viz. pseudo-protanopia and pseudo-deuteranopia. He does not describe the detail. In this case he tested with the American Optical Company's Holmgren Colour Test and the Pseudo-Isochromatic Plates. Apart from suppressing red and green, *S*s were not able to perform in a way similar to the truly colour blind; and accordingly Harriman concluded . . . "it is possible to induce a profound change in *S*'s attitudinal behaviour, although it appears doubtful whether sensory content is actually changed."

In summary: Repeatedly, studies of positive and negative colour vision hallucinations have produced results which have been said to support the notion of real changes in sensory process. Methodological weaknesses in these studies, however, allow for reinterpretation of the results in terms of simulation. The status of after-images to hallucinated colours is still in doubt, although the form which an appropriate experiment might take is now clearer. Harriman's second study on colour vision anomalies goes against the notion of genuine colour blindness. In general then, while there are loose ends, this body of work is consistent with the "sceptical" point of view, while the occasional unambiguous result goes against the "credulous" view.

Temporal

Early studies concerned the subject's appreciaton of time in hypnosis. More recently attention has been given to the suggested distortion of time and its effect on various performances.

As subject's could carry out post-hypnotic suggestions at specified times, it was at first thought that hypnosis improved a subject's judgment of time. It was seen that some suggestions specified a readily recognizable date, so then arbitrary intervals of time would be chosen: "perform X, 2559 minutes from now."

Delboeuf, Bramwell and Hooper used this method with lengthy time intervals, Gurney and Mitchell with short. Clausen has recently shown that this method, where *E* specifies an interval which *S* must match, is the most reliable of three commonly used; but in these earlier studies it had certain difficulties as Mitchell's findings showed. Although investigators claimed that their subjects had no knowledge of arithmetic, and the subjects when awake disclaimed calculation, enquiry showed that both claims were false. Subjects in fact used the following methods: *S* would convert a long time interval into units of days, hours and minutes and thereby fix the date and time for the execution of the post-hypnotic act. With short intervals, in the absence of clocks, *S* would use rhythmic counting, pulse or breathing, as a basis of judgment. In an experimental study, Stalnaker and Richardson showed that subjects used counting, pulse, etc. "with astonishing success" for judging short intervals; but when specifically directed not to use such means, the subjects were no more successful with hypnotic suggestion for improved time judgment than they were in the normal waking state.

More hallucinatory in character are the "time distortions." A subject in trance for about one hour may declare on awakening that he has been asleep for five minutes; this may be a function of post-hypnotic amnesia. In the trance itself, the passage of time may appear longer or shorter than it actually is (Welch) much as in the waking state where interest and boredom seem to affect it. In these terms, Cooper and Erickson studied time distortion produced by hypnotic suggestion.

Cooper and Erickson use a novel terminology which parallels a conventional distinction between "real" and "phenomenal" objects of perception. Generally, "real" time is called "world" time or WT, and "phenomenal" time is called "seeming duration" or SD. In an experimental context the real time is fixed by *E* but unknown to *S* for a given task is called the "allotted time" or AT, while its phenomenal time—the time seemingly available—is called the "suggested personal time" or SPT. Activities in time are said to be either "continuous" such as breathing which is a process with no well defined end, or "completed" such as an intake of breath

which has a discrete character. Time distortion is said to exist where WT ≠ SD for a given activity, i.e when *S* falsely perceives the duration of an activity. Ordinarily the SPT as stated is not equal to the AT, but in the experimental setting the subject is required to misperceive the AT as equal to the SPT.

Cooper and Erickson investigated the "utilization of subjective time." While these authors espouse a philosophic idealism in adopting such a notion, their procedures can be recast into realistic terms. Their line of argument runs: "If SD > WT, perhaps one can get more done in SD than in WT." More consistently they might have argued that: "If SD > WT, perhaps one can seem to get more done in SD than in WT." Their experimental evidence can be brought to bear on both; all of their studies bear on the second, some on the first, depending upon the "activity" to be carried out in "time." In some studies, *S*'s "improvement" is evaluated only by reference to an "imaginary" performance, and so they bear only on the second line of argument. In other cases evaluation is based on "actual" performance and these then bear on the first line of argument. Now, "utilizing subjective time" means in realist terms "engaging in an activity while falsely perceiving real time." If one compares actual and imaginary activities in relation to true and false perception of time, four situations arise, and performances in each case can be evaluated in one of two ways. These possibilities are set out below in tabular form to show the division amongst the Cooper and Erickson studies:

	Activity	
Time	*S Actually Performs X*	*S Imagines Performing X*
S correctly perceives Y	Control condition	Control condition
S falsely perceives Y as Z	Mathematical problems	Counting experience
	Nonsense learning	Human relations problems
	Creative activities	Rehearsal of motor skills

X is a given activity; Y is real time; Z is the SPT, change in performance of X as a function of a given time experience may be evaluated by reference to either (i) *S*'s subsequent actual performance of X; or (ii) *S*'s subsequent imaginary performance of X. An examination of Cooper and Erickson's work in these terms reveals that they do not always provide the appropriate controls, nor do they in all cases choose the appropriate means of evaluation.

Fourteen subjects were used, of varying age, sex and background, but not all in any one study which might involve but a single case. Subjects capable of deep trance were "trained" for the experiments, the crucial feature being acceptance of the suggestions of time distortion. Typically this involved agreement that 10 seconds seemed like 10 minutes. In evaluating the generality of the results it should be noted that subsequent to

the original selection of subjects, the authors decided . . . "to continue training only with those who are promising." Typical procedures were as follows:

	Activity	
Time	*Continuous*	*Completed*
WT	"You will go walking."	"You will prepare a meal."
SPT	"You will spend at least 10 minutes walking."	"You will prepare a meal; it will take 1 hour."

The tasks performed in trance were (i) "contemplation" of experiences such as walking, swimming, shopping, etc. either as an experience to be described for its own sake, or as a possible means of learning as in the "rehearsal" of musical performance and handwriting; and (ii) "directed thinking" as in the solution of problems. A subject might carry out a number of tasks in trance before reporting on them upon awakening. The authors pay no attention to the possible influence of retroactive inhibition and post-hypnotic amnesia; the latter omission is especially puzzling as the subjects are presumably somnambules.

The results of particular studies may now be examined, first the imaginary and then the actual activities.

1. *Imaginary Activities*

1. COUNTING

A typical study involved a subject "hallucinating" an experience on a farm where she counted strokes of a butter churn for SPT = 10 minutes, AT = 3 seconds. She reported counting 114 strokes in leisurely fashion, amongst other details of her experience. This would support the conclusion that *S* can seem to do more if she seems to have more time; but there is a paradox if one takes the subject's testimony literally. *E* tells *S* that 10 minutes is available, but stops her after 3 seconds. As *S* is presumably unaware of the 3 seconds limit on AT she might be expected to proceed at the rate "normal" for a projected 10 minute activity and thence to have completed 3 seconds of that activity at the normal rate when the signal to stop is given. Thus for 10 minutes of activity to have been experienced there would need to be a tremendous speeding up between the onset of the stop signal and the beginning of the next step in the trance sequence. It seems more likely that these reports are after-elaborations of a train of associations set off in trance—much as occurs in the reporting of dreams. No controls for "waking" performance are provided. When this performance is evaluated in relation to a subsequent actual counting performance further difficulties of interpretation arise. When awake, *S* illustrated her trance count-

ing with strokes at the rate of 1 per second. If she had in fact counted at this rate, she would have reported 3 strokes for the AT or 600 strokes for the SPT; as she reported 114, clearly she did not count at the rate of 1 per second in trance, although this may have been the appearance to her. Suppose on the other hand that she did count 114 strokes in trance; then her rate would have been 114 per 3 seconds AT which is 38 strokes per second. There is no waking control on whether *S* could count at such a rate, but it seems most unlikely.

Other experiments on counting give similar results and it may be concluded: (i) *S* does not in fact count one by one in trance the objects described at the rate demonstrated when awake; it is unlikely in fact that *S* counts at all. (ii) On *S*'s testimony, she seems to count and the experience is "real to her."

II. HUMAN RELATIONS PROBLEMS

In a typical case the experimenter sets a woman subject the problem of giving advice to a young couple who wish to marry where the girl has a dependent invalid mother. The conditions were SPT = 10 minutes, AT = 10 seconds. The subject gave a detailed account of an imaginary interview with the clients and a solution. No waking control was provided on the "solution" of such problems. As the subject was 36 years old, she would have had her own and also vicarious experience in such matters from which to formulate a solution. Once again there is no objective evidence that *S*'s mental processes were speeded up, although the subject may have had this impression. The same sort of comment can be made about Cooper and Erickson's dress designing problem.

III. REHEARSAL OF MOTOR SKILLS

In this study, 5 subjects were to hallucinate writing with the non-preferred hand. Samples of actual handwritting were taken to gauge progress with "practice" in "distorted time." A waking control group which did as much writing as the experimental group performed as well at each stage although it had no rehearsal in fantasy. Once again there is no evidence for real effects on behaviour, although the subjects reported an impression of improvement.

2. *Actual Activities*

I. NONSENSE SYLLABLE LEARNING

One subject learned nonsense material in the waking state and again in trance with time distortion. Learning was by the method of paired associates. The average time for learning a letter-group-pair was shorter

with time distortion: but there was no difference between the trance and waking conditions for measures of retention. Insufficient data are given to enable evaluation of these results, e.g. there are reported no item data which would show that the two paired-associates lists used were of comparable difficulty. This experiment would need repetition with independent waking controls and more subjects.

II. MATHEMATICAL PROBLEMS

Two subjects performed simple arithmetic problems in the waking state and in trance with time distortion. When no allotted time was set, the subjects did no better than in the waking state. When the subjects were allotted time such that WT < SPT . . . "the performance in terms of correct answers was no better than chance would give." Though not explicitly stated, it appears that the *S*s were hardly able to begin a problem before their allotted time was up, and they could then do no better than guess.

In summary: The uniform outcome of these studies and others not discussed here, (with the dubious exception of the study of nonsense syllable learning), is that no *real* effect upon behaviour is induced by time distortion. The subjects *did not* count, solve problems, benefit from imaginary practice, or the like; although they behaved in their testimony as if they did. The "credulous" view is not supported by these studies.

Studies of Regression

A common device in early demonstrations of hypnosis was to suggest to a subject that he was some other person, or in some other time or place. Binet gives priority to Bourru and Burot (1887) in requiring *S* to relive part of his past life. After working with the French investigators, Freud with Breuer developed the method of abreaction. The term "hypnotic regression" has been used generally to refer to all forms of behaviour manifested by the subject in response to the hypnotic suggestion that he is younger. Erickson and Kubie introduced a distinction between regression and revivification, the former "a half-conscious dramatization of the present understanding of that previous time" and the latter that "type of time regression in which the hypnotic situation itself ceases and the subject is plunged directly into the chronological past." Gill rejects the latter outright in light of the continuing rapport between subject and hypnotist. Weitzenhoffer (1953) distinguishes three types of regression as behaviour, and revivification as the process whereby such behaviour is brought about. The first type of regression, RI, refers to dramatizing or acting out the past; RII refers to "a true psycho-physiological return to a past state";

and RIII is a blend of the first two. The "sceptical" view is that only RI occurs, while the "credulous" view is that RII can sometimes occur. Experimental work has concerned the developmental aspects of mental test performance and physiology.

1. *Mental Test Performances*

Young (1926) regressed a subject with IQ = 140 to the age of 4 years, and also had him "play the game of being four years old" in the waking state. Tested under these two conditions the subject gained IQs of 183 and 189 respectively. Young "believed that at least in this case the *S*, all unconsciously and with great verisimilitude, was playing a role" and he rejected the notion of RII on the grounds later given by Gill.

Platonow carried out a similar study, although there is some question as to whether his subjects were in fact hypnotized. He claims positive results for regression to 6 years of age; but as Young points out his results are suspect on several counts: the actual IQ of his subjects was not determined; there was no test of waking controls to see whether they might perform in the same way as the trance subjects. Young (1940) followed up the early studies with 14 somnambules and 7 non-somnambules. In the first study, 10 *S*s were hypnotized in a group setting, rapport was transferred to 10 mental testers for the determination of regressed IQ. The actual average IQ of the group was around 100, but in regression to the third birthday, the results showed an average excess of 18 months MA over the regressed CA. He further tested individually 9 trance subjects and 7 non-hypnotizable subjects, the first group hypnotically regressed to 3 years of age, the second simulating an age of 3 years in the waking state. The results for the groups were: actual IQ = 100; hypnotically regressed IQ = 198; waking simulated IQ = 178. This showed that neither group could produce the actual performance of three year olds.

Spiegel et al. used an elaborate procedure for regressing one subject to 2 years of age and then progressing step by step to his proper age. The Stanford-Binet test was given at each stage. With a real age of 23 years, the subject's IQ was assessed at 123; regressed IQs varied from 95 to 134. The manner of testing at each level was not described: it could make a difference to the results if the same or a different basal item level was used at different testings. Their waking control tests were not comparable to the trance test: "S was asked a random series of Binet questions and was to respond 'as if you are five years old' . . . etc." Perhaps their most significant finding was that when 18 months later the subject was regressed to the day of testing and retested . . . "the results were a score slightly higher than the original when awake, and his pattern of responses differ." No evidence of RII.

The latter study illustrates a control feature, later emphasized by Sarbin. He had actual Binet test records for 12 subjects obtained when they were 8 or 9 years old. (The ages and IQs of the subjects current at the time of the experiment are not reported.) The subjects were regressed to the day of testing at 8 or 9; and separately they were asked to simulate in the waking state an age of 8 or 9. The subjects were unable to reproduce the original test pattern under either condition, though they were a little closer to it with regression than with simulation. Kline (1950, 1951) reports a series of studies which are said to demonstrate RII, but these lack certain necessary controls which render their interpretation ambiguous; no waking controls were used; there are no test records for the age to which the *Ss* were to be subsequently regressed.

Several studies have attempted to assess "personality" changes with hypnotic regression. Bergmann et al. and Mercer and Gibson each used one subject regressed several levels after the manner of Spiegel et al. and tested at each stage with the Rorschach. Mercer and Gibson also used the Good-enough Draw-a-Man Tests and the Stanford-Binet Vocabulary. These investigators claimed positive results in that the *Ss*' behaviours compared favourably with the test norms for the age levels chosen. These studies, however, are inconclusive in that no waking controls were provided and no test records were available for the age to which the *Ss* were to be subsequently regressed. Orne's (1951) study meets these objections. He regressed 10 subjects to their 6th birthdays and found that Rorschach records, handwriting and drawing were unlike the norms for 6 year olds. In the waking state, subjects imagining that they were 6 years old produced results similar to those found with hypnotic regression. Rorschach protocols and drawings were available from the 6th birthday of one of Orne's subjects and these were different from the "regressed" test performances.

In general, studies of regression by mental tests are methodologically unsound and their conclusions are open to question. The few studies providing adequate controls refute the notion of RII. The overall picture favours the "sceptical" point of view.

2. *Physiological Indices*

A case commonly cited as evidence for RII is the apparent occurrence of unconsciousness in one of Erickson's patients at a point in a regression sequence at which (on independent evidence it was known) he had been hit on the head by thugs. According to Erickson (1937, p. 1286):

"The regression to the earlier period of life at which this experience originally occurred, occasioned by the hypnotic suggestions for reorientation, apparently functioned in such a fashion that all experiences subsequent to the event, including even the development of amnesia, were eliminated

by hypnotic dissociation from the patterns of response which were manifested in the experimental situation. Thereby revival of the experience with its associated responses was permitted as if it were the course of actual development. Once this process had been initiated by the evocation of readily accessible memories, the recovery of each item functioned in itself as an aid in recovering additional material in its original chronological order, thus constituting a continuous progression to completion of the sequential activity. Hence there would be aroused in proper order and relationship the concomitant psychic and somatic activities with their corresponding alterations and adjustments of the mental and physical states, the entire process being directed by the originally established patterns of response."

This is held to be a genuine case of RII, but the following reservations should be noted: (i) Independent evidence shows that while the regression session was only 4 hours long, the events reported extended over some days. The "unconsciousness" in trance lasted several minutes, whereas in the original situation, *S* did not recover full consciousness for many hours. Thus as the temporal characteristics of the real and regression situations differ, they must also differ in their behavioural details: the regression is not like the rerun of a sound film. (ii) Despite Erickson's (LeCron) contentions that the hypnotist must adopt a role pertinent to the *S*'s regressed state, his role in this case is not specified; and to judge from the questions he put to the subject (p. 1283)—"What's the matter? What's happening?"—it seems unlikely that he was playing the part of one of the thugs. (iii) The regression sequence was repeated after more than one year, and again a further five months later; and (p. 1284) . . . "the records obtained were compared with those of the first investigation and were found to be essentially identical, including all the findings contained in this report. The same descriptive details, the same sequences, the same physical manifestations and even the same fragmentary utterances and gaps in the re-experiencing of the events were found." The verbatim records are not reported so that an independent assessment of the extent of identity cannot be made. The claim of identity from session to session appears to be an overstatement, for, considering the part he played in the regression sessions, Erickson himself would have had to repeat exactly in the right sequence his suggestions, questions, comments, etc. Accordingly this report cannot be accepted as conclusive evidence for RII.

Another case report is provided by Kupper. A patient, diagnosis doubtful, suspected of malingering, in 1940 showed "diffuse abnormality" on EEG and in 1943 showed "diffuse cortical irregularities consistent with a convulsive disorder." It is not stated whether this was an occasional or continuing pattern. When the subject was regressed under hypnosis to a traumatic occurrence in 1938, and certain changes in the EEG were noted

(p. 17): "He was taken back to his 12th birthday and the EEG within normal limits. It remained so through succeeding suggested years until his eighteenth year in 1938 following the first attack. Then diffuse cortical abnormalities occurred By suggestion the patient was placed in the situation prior to the initial attack on the fatal morning. More irregularities, abnormalities, and spiking occurred The record was then changed within normal limits by reassuring the patient." No data or records are provided, no waking control (with mention of the traumatic incident) was used It is possible that *S*'s EEG train was only incidentally abnormal in relation to memories of the traumatic incident

Gidro-Frank and Bowersbuch studied the plantar response under hypnotic regression In 3 of an original 45 subjects "dorsiflection of the great toe and fanning of the other toes" was found when the subjects were regressed to 5 6 months of age While plantar flexion was noted at other ages, no quantitative data are given so that it cannot be determined whether these were invariable reactions There were no waking controls—a necessity in light of other evidence (Weitzenhoffer, 1953) that reversal of the plantar reflex is not uncommon in adults.

The authors note that their subjects' muscular coordination remained adult despite their regression to a very young age, and they continued to understand and communicate with the hypnotist. These findings suggest RI rather than RII

True claimed to have devised a simple method for distinguishing RI and RII This requires *S* to give the "day of the week" on which a given event occurred such as Xmas Day or *S*'s birthday. He questioned 40 men and 10 women about recent events and found "poor memory"; while in hypnotic regression 82% were correct in stating the days of their 10th, 7th and 4th birthdays N details are given of the ages of the subjects or of their knowledge of their most recent birthday. Time taken to give an answer is not reported No waking controls were used. All of these facts are important in that True may have fallen into the same error as that made by the early investigators of time judgement (Bramwell, 1900, Delboeuf, Hooper) That is without actually "reliving the day" through hypnotic regression, subjects could give the correct day by deduction from available information: 1 year = 52 weeks and one day, and 1 leap year = 52 weeks and 2 days; thus to specify the day of a given data one has only to count back from 0 to 7 days as the number of years specifies.

In summary: The study of hypnotic regression is in many cases as backward as the investigations of the 19th century Repeatedly crucial controls are lacking and evidence is anecdotal. The few methodologically sound studies refute the notion of RII. In the absence of rationale of the link between hypnotic procedures and alleged hypnotic effects, RII is as magical

a notion as many of an earlier period and only one step removed from its popular version which involves reincarnation (Cf. the case of Bridey Murphy). The most significant need in future studies is for objective records of the subject's behaviour at time t_1 so that subsequently at time t_{1+x} when S is regressed (or is required to simulate regression) through the time interval x the two behaviours can be compared. The weight of evidence to date supports the "sceptical" view that the subject's behaviour in these situations is a form of role-playing.

Studies of Anti-Social Behaviour

The French Commission of Enquiry into Animal Magnetism (1784) in a private report discussed the possible use of magnetism in sexual seduction (Binet, 1887, p. 18–25), and it was of the opinion that "such practices and assemblies may have an injurious effect upon morality." The possibility of using hypnotic suggestion for the production of other forms of "anti-social" behaviour such as theft was investigated by Braid (Bramwell, 1906). Bernheim (p. 160) reports a series of cases of false testimony induced by indirect methods such as the use of retroactive hallucinations and delusions. Bramwell (1906, p. 323), having questioned hypnotized subjects about their behaviour, described "anti-social" acts as "a palpable farce." He quotes de Jong with approval as saying that the subjects will resist certain disagreeable suggestions . . . "while they execute others alleged to be criminal, because they recognized that these were laboratory experiments devoid of danger either to themselves or others." Schilder and Kauder (p. 52) in similar vein argued . . . "that the hypnotized person is always aware of the general situation, that he is conscious of the fact that an experiment is being made upon him, and that he must be well aware that the hypnotizer is not inducing him to commit an actual murder, if the hypnotizer is a man of respected social position. We are therefore of the opinion that the hypnotized person can only be brought to perform such crimes as correspond with a previously existing inclination on his part." Erickson (1939), as Young (LeCron) points out, is somewhat out of character in supporting this view. He describes 35 widely differing circumstances in which he was unable to induce anti-social or self-injurious behaviour. His particular definition of "anti-social" involves awareness on the part of the subject of the reprehensible character of the behaviour suggested. This committed him to the use of direct suggestion rather than indirect methods through hallucinaton and delusion and the role of "demand characteristics" (Orne, 1959) in determing his results would need to be carefully considered.

If one adopts a legalistic definition of an "anti-social act," e.g., theft

= taking another person's property without legal right, then the weight of evidence supports the view that hypnotized subjects may be induced in particular settings to behave in anti-social ways. Wells and Brenman successfully induced theft and breach of confidence. Schneck (1947) and Watkins (1947) report a variety of military offenses. Rowland (1939) and Young (LeCron) report attempts at injury of self and others. Weitzenhoffer (1949) has argued that the difference in outcome, between the studies of Erickson on the one hand, and of the other investigators on the other, is probably a function of method. That is, if one can make use of indirect methods to delude the subject it may be possible to induce anti-social behaviour; whereas the subject is reluctant to so behave if it is made clear to him that his behaviour is morally reprehensible. Lyon's study gives some support to this view in that anti-social acts were more readily induced when justification and rationalization was given for an act than when *S* was simply commanded to act.

Some of these studies provide no waking controls for *S*'s behaviour, a minimum requirement for demonstrating the necessity of hypnotic suggestion; and of those which do, one may ask whether the control is an appropriate one. De Jong, Schilder and Kauder, and Erickson all comment on the setting in which the study is carried out; and repeatedly one can point to features of experiments which would be recognized by the subject as "staged." For instance: in Lyon's experiment why leave a confidential report in an open and unattended office? In Rowland's and Young's experiments why expose only *E*'s head as a target? The experiment would need to be conducted in "non-staged" circumstances, and the appropriate waking control would then be *S*'s behaviour while awake in a comparable setting.

In summary: There is disagreement over the definition of anti-social behaviour and the methods of inducing it, but most studies report that subjects will carry out suggestions given to them. If the subject's testimony can be taken as relevant, it points to compliance with the demands of a person in a position of trust: (Lyon, p. 290) "I really didn't want to but I believed you"; "I thought it would hurt him but not seriously; but I thought this must be pretty important to you so I took a chance"; "Well you said it was alright to do it." This would support the "sceptical" view of the subject's behaviour; but this should be tempered by the fact that an adequate test of the "credulous" view has yet to be made.

General Conclusions: More often than not studies which are held to provide evidence for the "credulous" point of view prove to be inconclusive. The occasional well designed study tends to refute the "credulous" view; and so all told the evidence can be said to directly support or be consistent with the "sceptical" point of view. If this were a debate, one might say that the "sceptical" view wins by default; but as the scientist is less concerned to win arguments than to discover truth the case cannot be let

rest. There is a need made clear by this review for more rigorous methodology: many studies need to be redone with the proper controls to enable unequivocal conclusions. As a basis for evaluating current work and for planning future studies, the comparisons and controls discussed and illustrated throughout this review may be brought together into a single tabular statement of the basic design for hypnotic experimentation:

BASIC DESIGN FOR EXPERIMENTS ON HYPNOSIS

		Hypnotizability	
Major Comparisons	*Stimuli*	*Somnambules*	*Non-somnambules*
Control	Present		
	Absent		
Hypnotic trance	Present		
	Absent		
Hypnotic trance plus suggestions	Present		
	Absent		
Waking simulation	Present		
	Absent		

Replication: i. Independent random samples of subjects for the 16 conditions; ii. Independent hypnotists for the 8 hypnotic conditions •

The information provided by this design is as follows: The "control" condition provides a baseline of performance in the "presence" and "absence" of certain stimuli, e.g. how does the normal waking subject react in the GSR setup to (i) pain; (ii) the absence of pain. Against this baseline one can determine whether trance induction procedures alone make any difference; whether trance with experimental suggestions makes any difference; and whether simulation has any effect. Furthermore one can make internal comparisons to see whether, for example, hypnotically produced behaviour differs from simulation Presence and absence of stimuli are included as conditions to enable the study of both positive and negative hypnotic phenomena, e.g. positive and negative hallucinations; but also as a control on the experimental device being used—if the subjects react indifferently to the presence and absence of stimuli one's measures are either unreliable or irrelevant—and to provide the appropriate baselines for evaluating the effects of hypnosis. Two degrees of hypnotizability are included to allow for differential reaction to trance suggestions and thereby, with the somnambules, provide favourable conditions for the test of the "credulous" view. The use of independent groups of subjects will offset the difficulties raised by Pattie (1933), and repetition with independent hypnotists enables the evaluation to certain "demand characteristics" (Orne, 1959). The factorial design also enables assessment of interactions amongst the main variables The design is general in application and particular experiments will need additional controls, but its use can be expected to increase the likelihood of conclusive experimentation on hypnosis.

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5

"Credulous" and "Skeptical" Views of Hypnotic Phenomena: Experiments on Esthesia, Hallucination, and Delusion

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There is agreement about the phenomena of hypnosis, so long as terms like hallucination, delusion, and amnesia are used in a purely descriptive sense. Concerning the interpretation to be put upon the hypnotic subject's behavior and testimony about his subjective experiences—that is, concerning the nature of hypnotic phenomena—there is traditional disagreement.

Some assume a priori a distinction between trance behavior and simulation, and accept in good faith the subject's testimony concerning the occurrence of "genuine" hypnotic phenomena. They believe that hypnosis can produce aberrations in any given mental or behavioral function and transcendence of normal capacity. They assume that hypnotic suggestions are substitutable for real stimuli as conditions of perception, and consequently

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that hypnotic fantasy is akin in its sensory content to perception produced by parallel real stimuli. Erickson (1952) is representative of this "credulous" view.

The "skeptics" do not accept hypnotic behavior and testimony at face value, as no unequivocal criterion for distinguishing trance behavior and simulation has yet been found. Furthermore they note that at least some hypnotic subjects adopt devious and misleading means of achieving suggested effects and misreport their actual experience (Pattie, 1933). They leave it an open question whether any given trance performance may not be matched in a nontrance state. They accede that an hypnotic subject may act as if the world were as suggested, taking his cues for a successful performance from the hypnotist's explicit and implicit directions (Sarbin, 1950; White, 1941) and from the "demand characteristics" of the situation (Orne, 1959); and they allow that there may be differences of subjective experience in trance and nontrance states; but they doubt that hypnotic fantasies have the same sensory content as parallel perceptions of real stimuli.

The main points at issue may be summarized in two questions of fact: Is hypnotic behavior like voluntary behavior? Is it akin to an actor's performance of a role? or Is hypnotic behavior relative to a "subjective reality" the sensory content of which is identical in form with that produced by the stimuli of parallel objective reality? These questions may be answered by comparing hypnotic behavior with normal waking behavior and with waking acting or simulation.

For experimental study the two viewpoints need to be formulated in relation to specific hypnotic phenomena. A major difference between them concerns the subject's perceptions, so attention can reasonably be restricted to the cognitive phenomena of hypnosis. These may be classified in pairs such as paresthesia and anesthesia, positive and negative hallucination, and the like, according to whether the subject is required to produce or inhibit an experience. It then remains to select given modalities of sensory experience. For illustration, the two views are stated in relation to hypnotic anesthesia and paresthesia for painful stimulation.

The credulous view is that with hypnotic suggestion of anesthesia the subject has no more sensory experience in the presence of painful stimulation than he would have in the absence of such stimulation. Similarly, with hypnotic suggestion of paresthesia the subject has sensory experience in the absence of painful stimulation exactly as in the case where such stimulation is present. On this view, hypnotic suggestions are substitutable for real stimuli as conditions of sensory experience.

The skeptic doubts that painful sensory content is eliminated by suggestions of hypnotic anesthesia and that it is produced in paresthesia. He holds that the subject may agree with the hypnotist's suggestions in acting as if the suggested state of affairs were so. There are two possibilities, however, concerning the subject's perceptions:

1. *Simulation.* Although the subject complies with the suggestions he knows to the contrary that he is or is not being subjected to painful stimulation. Typically he misreports his true experience. If this be so, the central problem of hypnosis concerns the subject's motivation for misreport as a function of the hypnotic relationship and its procedures. In other respects no distinctions would be drawn between hypnotic behavior, voluntary behavior, and role playing.

2. *Delusion.* In complying with the hypnotist's suggestions the subject in some sense does not know that the real state of affairs is otherwise than suggested. If the subject is receiving painful stimulation there can be no passive ignorance, and "not knowing" must mean an active denial of reality. This version of the skeptical view which allows that the hypnotized subject may be deluded about some features of the trance situation has affinities with the credulous view. It may, however, be held independently of those aspects of the credulous view which concern sensory content.

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Design of Experiments

General requirements for the design of experiments on hypnosis are discussed elsewhere (Sutcliffe, 1958, 1960). The basic design is set out in Table 1. The major comparisons bear upon the questions of fact. The control conditions constitute the "parallel objective reality" of the second question; while suggestions given in hypnotic trance, on the credulous view,

TABLE 1

BASIC DESIGN FOR EXPERIMENTS ON HYPNOSIS

		Hypnotizability	
Major Comparisons	*Stimuli*	*Somnambule*	*Nonsomnambule*
Control (C)	Present	C−	C−
	Absent	C+	C+
Hypnotic induction (HI)	Present	HI−	HI−
	Absent	HI+	HI+
Hypnotic induction and suggestion (HIS)	Present	HIS−	HIS−
	Absent	HIS+	HIS+
Acting when awake (WA)	Present	WA−	WA−
	Absent	WA+	WA+

[a] Orne's (1959) work is a notable exception. It was not published, however, at the time the studies reported in this paper were conducted.

set up a "subjective reality." These are referred to, respectively, as the C and the HIS conditions. Comparison of behaviors under these two conditions bears upon the second question of fact and thus enables a test of the credulous view. The two hypnotic conditions may be compared to distinguish the effects of hypnotic induction, HI, per se from the effects of experimental suggestions given to the subject following upon the trance induction procedures, HIS. In the WA conditions the subjects are required to act in the waking state as if conditions were as suggested by the experimenter; and comparison of this behavior with that found in the other conditions enables a test of the skeptical view.

The presence and absence of stimuli refer to the nature of the real situation. Fantasy adds something that does not exist or affirms something false, or it takes away something that does exist or denies something true. One may thus denote absence in a real situation as the positive case, and presence in a real situation as the negative case. For example, C+ refers to the control condition with the experimental stimuli absent. To test the credulous view, one compares behavior under positive hypnotic fantasy, HIS+, with behavior under negative control conditions, C—: in the latter the stimulus is present, in the former the stimulus is actually absent but the hypnotized subject has to fantasy its presence. Conversely, one compares negative hypnotic fantasy with positive control behavior. If behaviors are alike in these comparisons the credulous view is confirmed; but if they are unlike, and especially if HIS+ is like C+, and HIS— is like C—, real stimuli are dominant and the skeptical view is confirmed. For these various comparisons to have any force, it is of course necessary that behaviors differ in the presence and absence of the control stimuli.

The experimental comparisons are made for both somnambulistic and nonsomnambulistic subjects. This provision rules out the possibility that failure to confirm the credulous view in certain cases is due to the use of insusceptible subjects. The complete design thus entails eight distinct experimental conditions replicated for two types of subjects. No one subject performs under more than one condition in a given experiment, that is, an experiment entails 16 independent groups of subjects.

Experiments on esthesia, hallucination, and delusion were conducted in conformity with this basic design. Each experiment entailed three main observational stages: pretesting for all three spanned 2 months and preceded major experimentation for all three which spanned 3 months before final subsidiary experimentation. The three experiments were thus conducted at the same time. They drew upon a common pool of subjects, but these were allocated among the experimental groups in different ways from experiment to experiment. A typical subject, for instance, could be a control in one case, a hypnotic subject in another, and an actor in the third.

Sampling and Allocation of Subjects

The experimental subjects were drawn from undergraduate psychology classes at the University of Sydney Such students are highly selected from the general population in age, ability, and education. For this group women tend to outnumber men, and interests tend more to the humanistic than to the natural scientific.

For the experiments, two pools of subjects were to be obtained from this population: somnambules and nonsomnambules These were obtained by selection from volunteers The major criterion for selection was reaction to hypnosis. Subjects were handled individually, the initial session spanned 1.5 to 2 hours. Adapted from Bernheim (1890), Davis and Husband (1931), Friedlander and Sarbin (1938), White (1941), and Erickson (1952), the particular criteria were as follows: for *somnambules* manifestations on the first occurrence of hypnotic trance and at subsequent sessions of complete spontaneous posthypnotic amnesia; manifestations on the first or at subsequent sessions of "convincing" esthesias, hallucinations, and delusions, and of the ability to open the eyes and converse without coming out of trance; positive motivation; and for *nonsomnambules* reality contact and self-awareness throughout all hypnotic procedures with complete absence of spontaneous and suggested amnesia; complaint or willed rather than compulsive or involuntary reactions to suggestion; positive motivation.

Erickson's (1952) claim that success in hypnotic experimentation cannot be expected unless subjects are "trained" for deep trance is contentious; but to ensure that conditions were not unfavorable for a test of the credulous view, all somnambules were trained by the methods he describes to ensure clear-cut clinical manifestations of hypnotic esthesia, hallucination, and delusion prior to the beginning of experimentation. There was a minimum interval of 2 months between selection and training on the one hand and participation in an experiment on the other. During the experiments proper which involved hypnosis, a subject was run through a trance induction procedure that took 30 minutes. For a subject chosen for the HIS conditions, this was followed by an additional 15 minutes of hypnotic procedure for the production of esthesia, hallucination, or delusion as required (see Sutcliffe, 1958, pp. 105 108, 219 249, for details).

Of 487 students approached, hypnotic procedures were applied to 156 volunteers, and of these, 108 were rejected as recalcitrant or as intermediate or uncertain in their degree of hypnotizability. Selection continued as subjects came to hand until 24 somnambules and 24 nonsomnambules had been found, each pool comprising 12 men and 12 women. There were no significant differences in age for these four subgroups, and the overall

mean was 22.9 years with standard deviation 3.2. For a given type the incidence out of 156 is approximately 16%, which agrees with the statistics compiled by Bramwell (1906). Thus although the specific aim in selection was to obtain given numbers of subjects, it happened that the two extreme types of subjects occurred at about the same rate as they do for the general population insofar as that can be determined from inadequate statistics; and so the experimental universe is not atypical. Experimental results obtained from the samples have generality in that the latter are at least representative of the extremes of hypnotizability for young adult men and women at the university.

The primary concern in testing the credulous and skeptical views is to compare the control, hypnotic, and acting conditions; studies of the effects of trance per se, of individual differences and reliability are subsidiary. Attention might thus be restricted to methods of allocating subjects to the six experimental conditions: C+, C−, HIS+, HIS−, WA+, and WA−. For the experiment on esthesia, six independent random samples of four subjects were drawn separately from each of the somnambule and nonsomnambule pools, and one of the six experimental conditions was assigned at random to each group. With the other two experiments a matching procedure was used to minimize intersubject variation which, in samples as small as four, could blur group differences. To achieve this matching, subjects were listed in rank order on a relevant pretest, the parallel form of which was to be used as the dependent variable in an experiment. Twenty-four somnambules could thus be subdivided into six subgroups each containing four serially ordered subjects. The same procedure was applied to the nonsomnambules. Although the common pool of 48 subjects was used for all three experiments the experimental allocations for a given subject varied from experiment to experiment. No subject was aware of his group allocation for any given experiment, and his participation could give him knowledge of only 1 of 12 conditions in a given experiment. The experimental testing was embedded in a context of other testing procedures; and in these various ways all subjects were kept ignorant of the overall design of the experiment and of the experimenter's aims.

Experiment I: Esthesia

Esthesia was chosen for investigation as it is regularly cited in support of the credulous view. Most commonly, hypnotic anesthesia has been studied; here paresthesia is also considered. Most studies have used some sort of a probe as a pain stimulus; here electric shock is used. The subject's testimony, gross motor movments, and GSR to the shock stimuli are observed.

Method

APPARATUS

The subject was connected to a GSR circuit (Woodworth, 1938, p. 278) with electrodes attached to fingers of the right hand, and to a dc shock circuit via the left hand. A switch in the latter circuit enabled the experimenter to deliver either a buzz without shock, or buzz and shock simultaneously.

PRE-EXPERIMENTAL TESTING

The subjects were given a series of shocks with the apparatus described. This provided them with experience necessary for subsequent paresthesia if it were to occur. Also it enabled the experimenter to determine a fixed level of electric shock that produced pain in all subjects.

EXPERIMENTAL PROCEDURES

The experiment was conducted in a sound-dampened room. The subject sat at a small table placed in a corner so that ahead and to the right he faced bare walls, while to the left and behind he was bounded by a wooden screen. The experimenter sat behind the subject, or moved out when necessary to control the apparatus concealed by the screen. The table was bare and only the electrodes were visible. A fluorescent source provided constant illumination. The only stimuli of a variable character were the experimenter's instructions, and the buzz or buzz-shock of the apparatus as delivered by the experimenter.

The particular experimental conditions were as follows:

C^+ The subject was linked to both the shock and GSR apparatus but received no shocks. When the stimulus key was depressed by the experimenter, buzz alone occurred. The only instructions given to the subject were that he should remain passive and refrain from gross motor movements.

C^- This condition was identical with C^+ except that when the experimenter depressed the stimulus key, the subject received an electric shock simultaneously with hearing the buzz.

HIS^+ The objective conditions were those of C^+. In addition, the subject was induced into deep trance and paresthesia for shock suggested, the "shock" to be felt simultaneously with hearing the buzz.

HIS^- The objective conditions were of C^-. In addition, the subject was induced into deep trance and anesthesia was suggested for the left hand.

WA^+ With the objective conditions of C^+ the subject was asked to recall a circumstance in which, though not in pain, he had behaved as if he were, specifically, touching an electric iron to see whether it was hot; and the subject was then asked to respond at the buzz as if he had received a painful electric shock of the magnitude previously experienced.

WA^- With the objective conditions of C^- the subject was asked to recall a circumstance in which, though in pain, he had behaved as if he were not; specifically, having fallen over as a child when playing with other children; and the subject was then asked to respond at the buzz as if there were no shock.

In each case, the subject received four stimuli at intervals of approximately 1.5 minutes. In the intervals the experimenter recorded the subject's GSR and the base level of skin resistance prior to giving the next stimulus, and he repeated crucial instructions pertaining to the experimental condition. Hypnotized subjects were specifically questioned about their experiences. Movements and comments from subjects provided qualitative data to supplement the quantitative GSR records. The room was sound dampened, the experimenter worked quietly, the subject remained passive, thus irrelevant stimuli to the GSR were absent, and the GSR can be taken as indicative of the subject's reaction to the experimental condition.

Predictions

On the credulous view, one would expect the GSR for hypnotic paresthesia to be the same as the GSR for the C condition: that is, fantasied shock should be equivalent to experience of real shock. Also, GSR for hypnotic anesthesia should not differ from GSR in the C' condition if fantasied absence of shock is equivalent to actual absence. At the same time it would be expected that waking subjects cannot imitate the hypnotic performance. Furthermore, while nonsomnambules may be like somnambules in the control and acting conditions they should differ from them in the hypnotic conditions. Complete failure of these outcomes would confirm the skeptical view.

Results

Qualitative data are reported in Tables 2 and 3 for the eight somnambules who were tested under the HIS+ and HIS— conditions. These describe movements and comments made by the subject as trance reactions and in a comparable waking condition. These data show that as far as overt signs and the subject's testimony go, hypnotic paresthesia and anesthesia were invariably experienced.

GSR data are presented as log conductance change (after Haggard, 1949). If R is a base level of skin resistance immediately prior to stimulation, and R′ is level of resistance at the peak of reaction to the stimulus, the measure of reaction used is $(40 + 10 \log -1/R' - 1/R)$. This scaling with log zero denoted bar four gives a range of values from 0 (no reaction) to 30, the largest GSR for these data. Mean values for the various conditions are set out in Table 4.

The data were tested for significance by F and t tests via the analysis of variance, and the main findings were: Measurement of the GSR was reliable, intersubject variation being significantly ($p < .001$) greater than intrasubject variation. There was a significant ($p < .0001$) overall mean difference of 8 reaction units between the shocked and the nonshocked subjects, with all shock groups averaging about 18 to 19 while the nonshock groups differed widely. In the nonshock conditions, hypnotic subjects gave

TABLE 2

QUALITATIVE OBSERVATIONS ON REACTIONS TO REAL SHOCK (PRE-EXPERIMENTAL) AND TO HYPNOTIC PARESTHESIA OF SHOCK

Subjects	*Subject's Reactions with Paresthesia*	*Subject's Waking Reactions to Real Shock*
1	Flinches, grimaces, moves hand. In reply to questions about what he felt, the subject says dislikes shocks and would prefer that no more be given. Needs reassurance to continue.	Most apprehensive of apparatus; needs reassurance of low dc amps before proceeding; shakes electrodes off fingers at each shock. Has to be encouraged to replace electrodes and to continue.
2	No gross movements. When questioned, the subject reports that he feels strong shocks.	No gross movements apart from finger reaction but says with vehemence: "Wow! that gave me a belt."
3	Minor hand movement, facial grimace. Says first shock was only mild. Says that subsequent shocks were getting stronger and not to increase the strength further.	Reluctant to participate, says, "I know it's silly but I hate shocks." Needs much reassurance before proceeding. Exclaims loudly and shakes hand at each shock. Strong anticipatory avoidance both in hand movement and in vocal "oo."
4	Movement of hand, otherwise no signs. When questioned says she feels shocks but can take them if she has to.	Stoic, calm, and, apart from finger movement, no overt sign of pain. When questioned the subject reports that shocks were strong, can take them, but would not like them any stronger.

TABLE 3

QUALITATIVE OBSERVATIONS ON REACTIONS TO ACTUAL ABSENCE OF SHOCK (POST-EXPERIMENTAL) AND TO HYPNOTIC ANESTHESIA TO SHOCK

Subjects	*Subject's Reactions with Anesthesia*	*Subject's Waking Reactions without Shock*
1	Slight hand movement but reports feeling nothing. Visible increase in respiration subsequent to shock.	Keyed up expecting shock; exhibits startle at "buzz" and relaxes when he finds he is not shocked, thereafter passive.
2	Stuporous passivity, no movement in reaction to shock. When questioned, has to be urged to reply and mumbles that he feels nothing: "Hand is stone."	Apprehensive of shock; but reassured when only "buzz" occurs. Startled at first stimulus, but thereafter passive.
3	Stuporous passivity; no movement apart from hand jerk to shock. When questioned, denies feeling anything.	Says, "I hope there won't be any shocks." Some startle in response to "buzz," says, "That didn't hurt" and laughs. Subsequently passive.
4	Whole body jumped. When questioned the subject said, "I don't feel anything, but *she* seems uncomfortable." Subsequent movement restricted to fingers, but denies any feeling.	Matter of fact approach to the situation; no outward reactions. After second stimulus asks whether she should be receiving shocks. Accepts avoidance of reply with equanimity.

TABLE 4

MEAN CHANGES IN GSR EXPRESSED AS LOG CONDUCTANCE CHANGE

	Somnambule		*Nonsomnambule*	
	Nonshock	*Shock*	*Nonshock*	*Shock*
Control	3 3	18 1	10.8	19.7
Hypnosis	8 7	19.4	9 1	18.9
Acting	16 6	18.1	13 3	18.5

reactions consistent with the absence of shock, whereas the actors gave greater reactions approaching in magnitude those given by shocked subjects. That is, neither hypnotic anesthesia nor waking acting was able to inhibit shock reaction and in this they were alike; while acting could produce a shock-like reaction and hypnotic paresthesia did not and in this they were not alike. In reaction through GSR the somnambules and nonsomnambules were similar. In the comparisons that bear most directly upon the credulous and skeptical views, HIS+ was much more like C+ than like C—, and HIS— was much more like C— than like C+, and in this the data do not support the credulous view.

To check on the effects of trance induction per se, the eight somnambules of the C+ and C— groups were subsequently hypnotized, and with this difference the previous control procedure was repeated. The two groups, which averaged 3.3 and 18.1 in the waking state, average 3.5 and 17.4, respectively, in the trance state, so that the sheer fact of being in trance did not affect the GSR.

In case intersubject variability contributed to the nonsignificance of certain differences, given conditions were compared using each subject as his own control. The 16 somnambules comprising the HIS+, HIS—, WA+, and WA— groups were retested under the C+ and C— conditions; and thus a given subject's experimental performance could be compared with his normal waking reactions in the presence and absence of shock. These results fully confirmed those obtained with the independent group comparisons.

Conclusions

The credulous view that hypnotic suggestion is substitutable for real states of affairs as conditions of sensory content is clearly refuted by the quantitative data. The real state of affairs, shock or its absence, is the determinant of reaction even in the face of contradictory fantasy. It is quite clear that hypnotic suggestion does not produce "anesthesia" if by this is meant "absence of GSR to electric shock"; nor does it produce "paresthesia" if

by this is meant "occurrence of shock-appropriate GSR without electric shock." On the other hand, problems remain when these findings are considered in relation to the subject's testimony. Hypnotically anesthetic subjects report that they feel no pain when given shocks known otherwise to be painful and when their bodies are definitely reacting to the stimuli. Hypnotically paresthetic subjects report that they feel pain despite the absence of shock and bodily reaction. As reported, subjective experience is at variance with bodily reaction.

Experiment II: Hallucination

To investigate hypnotic hallucination—central to the credulous view—the auditory modality was chosen. Subjects were required to hallucinate, positively or negatively, sounds known to have a measurably distracting effect upon performance. This would provide an objective check upon the subject's testimony about hallucination.

Method

APPARATUS

It is known that delayed feedback of speech can disrupt and slow down speech (Spilka, 1954; Tiffany & Harely, 1952) and this fact was utilized in the experiment. The method used to produce the effect was to have the subject speak into a microphone attached to a multihead magnetic tape recorder arranged so that the input was fed into the subject's earphones after a delay of .27 seconds. (The reported optimal delay of .20 seconds could not be set up as the machine available provided only for delays of .07, .13, and .27 seconds.) The subject's vocalizing was an integral part of his test performance which then became subject to distraction effects.

The test performance required the subject to say aloud each step and the answer to simple addition problems. An item comprised the addition of three two-place numbers; there were 20 items to a trial, and five trials to a form. The form was prepared as a printed sheet of five rows of addition items to be presented to the subject for working and recording his answers. A 50-second time limit was set for each trial, and within this time the average subject could complete 10 items correctly. Parallel Forms A and B were prepared with constant mean and variance and estimated reliability greater than .8.

In preliminary standardization of the delay technique, there were observed progressive adaptation effects with practice and individual differences in magnitude of distraction effect positively correlated with speech rate. By comparison with normal average performance on the addition test, however, subjects performed significantly less well with delayed speech feedback.

PRELIMINARY TESTING

Subjects were tested on Form B of the addition test under normal conditions. This provided a criterion for matching subjects for the experiment to follow; it familiarized the subjects with the test procedure so that detailed explanations could subsequently be avoided, especially in the experimental hypnotic sessions; it provided baseline data for assessing the effects of trance per se on test performance; and it provided sensory experience for subsequent hallucination should it occur.

EXPERIMENTAL PROCEDURES

The experimental setting was similar to that described for the experiment on esthesia. The table was bare except for the test form and pencil which the experimenter provided when the test was to begin. Whether subjected to delayed feedback or not, every subject wore earphones fitted tightly to minimize normal air conduction of sound. The experimenter's instructions and the subject's vocalizings were routed to the earphones through a microphone located to the left front of the subject at a maximum distance of 18 inches from his mouth.

The particular experimental conditions were as follows:

- C^+ In the waking state the subject performed on Form A of the addition test. He wore the earphones and the recorder was set to produce zero delay. The subject did not speak aloud but mouthed words exactly as when speaking except for the absence of sound.
- C In the waking state the subject performed on Form A. He wore the earphones and the recorder was set to provide .27 seconds feedback delay. The subject spoke aloud as he worked at the test and suffered distraction.
- HIS^+ The objective conditions were those for C^+. In addition, the subject was induced into deep trance and positive hallucination for his own voice was suggested. The experimenter illustrated the interval of delay at which the subject was to hear his voice whenever he mouthed words, and the procedure was repeated until correct
- HIS^- The objective conditions were those for C^-. In addition, the subject was induced into deep trance and negative hallucination for his own voice was suggested.
- WA^+ The objective conditions were those for C^+. In addition, the subject was asked to recall a circumstance where he behaved as if he had heard a noise when there was in fact none, specifically, querying a person who appeared to have spoken; the experimenter illustrated the interval of delay at which the subject was to imagine hearing his voice whenever he mouthed words, repeating the procedure until correct: and the subject was then asked to perform the task as if, while mouthing words, he were actually hearing his own voice slightly delayed.
- WA^- The objective conditions were those for C^-. In addition, the subject was asked to recall a circumstance where he behaved as if he had not heard some sound, specifically, by ignoring a call when engrossed in an activity; and the subject was then asked to perform the task as if he could not hear his own voice.

In each case, the subject performed five trials at intervals of approximately 30 seconds. Crucial instructions were repeated between trials. Qualitative observations were restricted to the subject's testimony concerning the presence of hallucination. Quantitative data comprise the five trial scores for each subject.

Predictions

On the credulous view one would expect the performance of subjects with positive auditory hallucination to be like that for the negative control condition; that is, fantasied distraction is supposedly like real distraction. Also, performance under HIS$^-$ conditions should be like that for the positive controls if negative auditory hallucination does in fact offset actual delayed feedback distraction. At the same time it would be expected that waking actors cannot imitate these performances. Somnambules would be expected to differ from nonsomnambules under HIS conditions. Complete failure of these outcomes would confirm the skeptical view.

Results

The qualitative data for the hypnotic conditions were as follows. With the somnambules, testing was not begun until appropriate hallucination was reported; affirmative testimony was given in all cases. With the nonsomnambules, in no case did a subject accept the suggestions.

The addition test data are presented as number of correct items per trial with a possible range from 0 to 20. Mean values for the various groups are set out in Table 5. The results for the 12 groups on the Form

TABLE 5

MEAN PERFORMANCE ON ADDITION TEST FORMS A AND B

	Form B, Pretest				*Form A, Experimental*			
	Somnambule		*Nonsomnambule*		*Somnambule Distraction*		*Nonsomnambule Distraction*	
	Normal Testing Conditions for All Groups				*Absent*	*Present*	*Absent*	*Present*
Control	10.8	11.0	9.2	9.0	10.8	8.2	9.3	7.3
Hypnosis	11.0	10.5	9.2	9.5	8.5	7.0	9.6	7.4
Acting	10.2	11.5	9.2	9.2	10.0	9.0	9.1	7.0

B pretest under normal conditions are set out on the left-hand side; and their results on Form A under experimental conditions are set out on the right. These data were tested for significance via analysis of variance. There is a small but significant pretest difference in performance between

the somnambules and nonsomnambules which does not affect the main outcomes of the experiment proper. Test performance is reliable, intersubject variation being significantly ($p < .001$) greater than intrasubject variation. The only significant effect for the experimental data ($p < .05$) is the overall mean difference of approximately two items per trial between presence and absence of delayed speech feedback distraction. The data for the nonsomnambules are accounted for in this way: in the absence of distraction the pretest and experimental performances are the same; in the presence of distraction performance drops from the pretest level by an average of approximately two items per trial. The data for the somnambules in the HIS conditions cannot be explained simply in terms of distraction, and account must be taken of the effects of hypnosis per se.

The 16 somnambules of the C+, C−, WA+, and WA− groups were retested with Form B when later induced into trance. Comparison of individual results for the two testings revealed uniformly poorer performance in trance, the average drop exceeding two items per trial. Whether lethargic performance is an intrinsic feature of deep trance or a specific effect of the sleep suggestion procedure for inducing trance in these experiments is not established. The drop due to trance lethargy must be allowed for in this instance; together with the effects of delayed feedback distraction it accounts for the results of the somnambules in the HIS groups. The drop from 11.0 to 8.5 for the HIS+ group is explicable in terms of trance lethargy rather than positive hallucination of distraction; while a combination of trance lethargy and actual distraction can account for the drop from 10.5 to 7.0 for the HIS− group.

The eight somnambules of the HIS+ and HIS− groups were retested with Form A when in trance but without suggestions of hallucination. This procedure enabled comparison for a given subject of performance of the addition test under the three conditions: waking, trance, and trance plus experimental suggestions. These data, with intersubject variability controlled, corroborated the explanation of the results for the independent groups in terms of trance lethargy and speech feedback distraction.

Conclusions

Waking acting and hypnotic "hallucination" are alike in this case in that they are equally unsuccessful in opposing the effects of real stimuli. As with the experiment on esthesia, it is the real state of affairs rather than the subjective experience that determines the subject's objective behavior. Hypnotic suggestion does not produce positive hallucination if by this is meant sensory content comparable to that produced by actual speech feedback delay; neither does it produce negative hallucination if by this

is meant elimination of distraction effects. The credulous view is clearly refuted by these data. There remains, however, the puzzling discrepancy between the subject's reports of hallucination and the evidence of their objective performance.

Experiment III: Delusion

As a major category of fantasy, delusion recommends itself for study; but there is a dearth of experimental evidence. Delusion is typically defined as a false belief resistant to modification by contrary evidence. Thus a prerequisite for study is the choice of a proposition for belief. Of the infinite number available it is convenient to choose one the subject of which is the person or his ego: then the delusion has immediate and wide implications for the subject's behavior. Thus something is to be falsely predicated of the subject's ego. In terms of the design, the proposition must take both a positive and a negative form. The predicate must thus be such that it can be truthfully affirmed of one group and falsely affirmed of another, and at the same time, it can be truthfully denied of one group and falsely denied of another. As the experimental groups to be used contained equal numbers of men and women, "sex" was a predicate that fulfilled all of these conditions. The logical form of the positive and negative propositions for men and women is given as:

		MAN	WOMAN
TRUE	+	You are a man	You are a woman
	−	You are not a woman	You are not a man
FALSE	+	You are a woman	You are a man
	−	You are not a man	You are not a woman

The positive and negative conditions are different in that the statements that form a positive-negative pair are not equivalent. The positive statement is unambiguous, but the negative allows several interpretations: for example, "You are not a man" need not imply "You are a woman"; the subject's interpretation might be "I am a child." These direct statements were not used; the intention of the logical form was achieved by more elaborate suggestions. The details are given in Sutcliffe (1958).

The experimental test of the credulous view of delusion involves the subject in behavior relative to a belief about his sex. Of the many ways of behaving characteristic of the sexes, moral and ethical considerations ruled out direct observation of the more obvious genital behaviors. Interrogation relative to "hypothetical situations" might have yielded information, but this would have been limited to the subject's testimony. Accordingly attitudes and interests characteristic of the sexes were investigated.

Method

MATERIALS

Two parallel Forms A and B, each of 92 items, were prepared from the Emotions and Interests sections of the Terman and Miles (1936) Attitude-Interest Inventory. An item is scored +1 for a masculine response, −1 for a feminine response, and 0 for a neutral response by reference to the Terman-Miles scoring key. The algebraic sum of the weights gives a subject's score for the form. The correlation between the forms is .81 under normal conditions. The average score for women on the forms is just less than 0, $SD = 13$. The average for men is about 18 points higher, $SD = 10$. There is little overlap of the distributions for men and women; but it is known from the Terman-Miles study that a subject can, upon request, make answers conform or overconform to those of the opposite sex.

PRELIMINARY TESTING

All subjects were pretested on Forms A and B of the Attitude-Interest Inventory. This provided a criterion, Form B, for matching subjects in the experiment to follow, and a baseline, Form A, from which change in the experiment could be measured. While subjects would be most familiar with their own sex roles, they would also have knowledge of opposite sex roles, and accordingly no special experience had to be provided to enable subsequent delusion were it to occur.

EXPERIMENTAL PROCEDURES

The setting was that described for the experiments on esthesia and hallucination. The table was bare except for the test Form A and pencil which the experimenter provided at the appropriate time. When the subject had completed the inventory, the experimenter questioned the subject about his responses and sexual identity, and these data were recorded on tape.

The particular experimental conditions were as follows:

- **C^+** Half the subjects were men and for them it was simply true that they would fill out the inventory as men. The other half were women and would fill out the inventory as such. Each subject was required to enter name, age, and sex at the beginning of the test form before proceeding
- **C^-** Half the subjects were women and hence not men; while the other half were men and hence not women. The manner of filling out the inventory was as in the C^+ condition
- **HIS^+** The objective conditions were those of C^+. In addition, the subject was induced into deep trance when a delusion about sex was suggested in line with the logical form: "You are a woman" for a man; and "You are a man" for a woman.
- **HIS^-** The objective conditions were those of C^-. In addition, the subject was induced into deep trance when a delusion about sex was suggested in line with the logical form: "You are not a man" for a man; and "You are not a woman" for a woman.
- **WA^+** The objective conditions were those of C^+. In addition, the subject was asked to recall a circumstance where he (she) played the part of the

opposite sex; and the subject was then asked to fill out the inventory as if he were a woman (as if she were a man).

WA The objective conditions were those of C. In addition, the subject was asked to recall a circumstance in which he (she) had denied his (her) sex; and the subject was then asked to fill out the inventory as if he were not a man (as if she were not a woman).

Predictions

Whereas with the experiments on esthesia and hallucination it was not known in advance whether the subjects could perform the tasks set, in the experiment on delusion it was known that a waking subject can to some extent simulate opposite sex responses on the Attitude-Interest Inventory. Thus instead of asking whether an actor may do as well as a hypnotized subject, one must ask whether they differ in any way. On the credulous view, a deluded subject should behave just as a subject who holds the same belief in truth. Thus not only would one expect a change in performance with a suggested change in sex, but also it should be appropriate in degree. While alike in the content of their beliefs, however, the two groups may well differ in the reactions to interrogation and contrary evidence. Somnambules and nonsomnambules would be expected to differ primarily in the hypnotic conditions.

Results

The interrogation sought answers to two questions: what does the subject believe his sex to be? and how would he prove this belief? The details of the questioning and the answers given varied from case to case, but the results may be summarized as follows:

All control subjects correctly recorded their sex, and when questioned about it they invariably cited biological sexual characteristics as proof. Less frequently cited in addition were the judgment of others, birth certificate, clothing and hair styles, and interests. Subjects showed that they regarded their sex as self-evident, and they were puzzled by the experimenter's questioning of the obvious.

All "acting" subjects correctly recorded their sex, and they cited supporting evidence of the same kind as that given by the controls. For all but one subject, a nonsomnambule, the act terminated with the completion of the inventory. This subject carried the act into the interrogation, but when pressed for evidence gave up the act and changed to an admission of his correct sex. In no case was the act taken as far as entering the incorrect sex at the head of the inventory. When asked about this, subjects gave the stock reply that this was identifying information which stood apart from the experimental context. Two nonsomnambules and four somnambules reported difficulty with acting, and one of the latter said that she tried to give answers typical of neither men nor women.

All nonsomnambules in the hypnotic conditions correctly recorded their sex and gave appropriate evidence in support. All reported difficulty in imagining the state of affairs suggested by the hypnotist, and two of the men took objection to the suggestion that they had become women and actively opposed it.

The somnambules in the hypnotic conditions differ from the other subjects in several ways: While all 40 subjects so far considered correctly recorded their sex at the head of the form, only 2 of these remaining 8 subjects did so, one woman entered "male," and 5 made no entry. The 4 subjects in the HIS+ group, though in deep trance, resisted the suggestion that they were of the opposite sex and passively but continuously reiterated their true sex. This behavior was unlike that of the controls in its repetition and failure to mention any evidence. While the 4 somnambules and 2 nonsomnambules of the HIS+ condition objected to the suggestion that they were of the opposite sex, the 4 somnambules of the HIS— group more readily accepted the denial of their sex. They made statements such as "I feel it quite strongly, I'm sure of it" and "I feel it's just obvious"; and in this their conviction about the assumed sexual identity was like the controls' conviction about real sexual identity. They did not however cite any evidence.

Quantitative data were analysed for change as follows. The difference in score between pretest and experiment on Form A was found for each subject. The average change for a control group was subtracted from each subject's change score. This correction was carried out separately for the somnambule and nonsomnambule groups as the two sets of control groups differed in retest variation. The difference in direction of change due to sex was corrected by denoting change scores positive if the change was in the suggested direction and negative if the change was in the contrasuggested direction. It will be seen that this procedure sets the change scores for the control groups to zero. The mean values of change scores for the eight experimental groups are set out in Table 6. Differences between negative and zero, and between zero and positive change are significant.

Under normal conditions there is a mean difference of 18.6 between men and women on Form A. Thus for a given sex to successfully simulate the performance of the opposite sex group, it must change from its normal mean by 18.6. This provides a criterion for evaluating the data of Table 6. The nonsomnambules in the two hypnotic conditions did not change at all, consistent with their insusceptibility to hypnosis. On the other hand the nonsomnambules, when asked to simulate in the waking state, were able to change their performance and if anything they overacted the part. The somnambules in the HIS+ condition changed somewhat but inappropriately; the overemphasis in test performance upon true sex was consistent with their subsequent reaction to interrogation. The somnambules in the HIS— and WA— conditions changed by about the predicted amount, while

TABLE 6

MEANS OF CHANGE SCORES ON THE ATTITUDE-INTEREST INVENTORY FORM A FOR THE HYPNOSIS AND ACTING GROUPS

Condition	*Somnambule*	*Nonsomnambule*
HIS+	−9 5	0 8
HIS−	18 8	0 3
WA+	26 8	27 0
WA−	15 8	25 2

those in the WA+ group overacted Independent checks showed that trance per se does not affect performance on the inventory, and overall the results held for individual subjects as well as for the group averages

Conclusions

Negative hypnotic delusion was successfully suggested to the somnambules as indicated by their testimony and by the appropriate mean change in performance The WA− actors were as successful in changing their test performance, but their reactions to interrogation differed from those of the hypnotized subjects In the HIS + condition, both somnambules and nonsomnambules found the suggestion that they were of the opposite sex objectionable, the suggestion was resisted the experimental conditions for the test of the credulous view were not fulfilled, and hence this part of the data must be set aside It is of interest to note that deep trance does not guarantee acceptance of suggestion in all cases Where the experimental conditions were met the quantitative data do not clearly differentiate between the credulous and skeptical views the qualitative data support the view that in a number of cases hypnotized subjects were deluded about their sex

General Summary and Conclusions

Evidence from the three experiments shows that

1 It was not possible by hypnosis to produce sensory conditions identical in form with those produced by parallel real stimuli The GSR to real shock occurred despite hypnotic "anesthesia," and there was no GSR in the absence of shock despite hypnotic "paresthesia" Decrement in performance due to actual delay of speech feedback occurred despite hypnotic "negative hallucination," and no decrement occurred in the absence of delay despite hypnotic "positive hallucination"

2 There is equivocal support for the view that hypnotic behavior is like waking acting The two were alike in that neither was successful in inhibiting the effects of shock or distraction, and a further similarity was found with the negative delusion about sex The similarity in the first two cases should not be emphasized as it depends upon a failure of inhibition

where real states of affairs are dominant. In the positive condition where production rather than inhibition was called for, differences between hypnosis and acting did occur. In the absence of shock hypnotic subjects reported subjective experiences of pain but gave no GSR; while the actors with no subjective experience of pain overtly acted as if shocked and produced GSR.

3. With the exception of the HIS+ group in the third experiment, all hypnotized subjects were convinced of the actuality of suggested states of affairs. They asserted that they were shocked when in fact there was no shock, or they were not shocked when in fact they were; they could hear their own voices when they were not in fact speaking aloud, or they could not hear their own voices when in fact they were speaking aloud; they were not men (not women) when they were in fact men (women). This testimony was uniformly at variance with the evidence of the subjects' bodily states.

These findings justify the following conclusions:

1. The credulous view that hypnotic suggestions are substitutable for real states of affairs as conditions of sensory experience must be rejected.

2. The skeptical view that hypnotic behavior is like waking acting is true in some cases. The difference between hypnosis and acting might best be sought elsewhere than in the overt behavior, which is sometimes similar and sometimes dissimilar for the two depending upon the task and whether inhibition or production is called for. The qualitative evidence suggests that differences might more fruitfully be sought in terms of perception and belief.

3. Crucial evidence is lacking to decide between the two versions of the skeptical view concerning the subject's perceptions: that the hypnotic subject does not misperceive the real situation but misreports it; or that the hypnotic subject misperceives, that is to say is deluded about, the real situation. The latter view gets some support from the different reactions of hypnotic, control, and acting subjects to interrogation.

4. The distinguishing feature of hypnosis appears to be the subjective state; and the main feature of this state is the hypnotized subject's emotional conviction that the world is as suggested by the hypnotist, rather than a pseudoperception of the suggested world.

The role of the hypnotic relationship and its procedures in the communication of delusory conviction remains to be clarified. An approach which at the same time may throw some light on individual differences in hypnotizability would be to examine the authority relationship and the conditions of credence in their developmental aspects with emphasis upon the parent-child relation.

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III. THEORY

1

Comments on Hypnosis



Sandor Ferenczi

. . . It has been found that in the "unconscious" (in Freud's sense) all the impulses are pent up that have been repressed in the course of the individual cultural development, and that their unsatisfied, stimulus-hungry affects are constantly ready to "transfer" on to the persons and objects of the outer world, to bring these unconsciously into connection with the ego, to "introject. . . ."

Among the psychical complexes that, fixed in the course of childhood, remain of extraordinarily high significance for the whole fashioning of life later on, the "parental complexes" rank foremost . . .

With this knowledge it was not making a too venturesome step further to assume that the curious authority with which we as hypnotists dispose of all the psychical and nervous forces of the "medium" is nothing else but the expression of repressed infantile impulses of the hypnotised person. . . .

The capacity to be hypnotised and influenced by suggestion depends on the possibility of transference taking place, or, more openly expressed, on the positive, although unconscious, sexual attitude that the person being hypnotized adopts in regard to the hypnotist; the transference, however, like every "object-love," has its deepest roots in the repressed parental complexes. . . .

My first attempts at hypnotism, undertaken in my student days with the apprentices in my father's publishing business, succeeded without exception; later on I had nothing like such a high percentage of successes, but then I had lost the absolute self-confidence that only ignorance can give. . . .

Selections from chapter 2, Introjection and transference, in Ferenczi, S. ***Sex in psychoanalysis.*** (Transl. by E Jones) Republished with Ferenczi, S., & Rank, O. ***The development of psychoanalysis.*** N.Y.: Dover, 1956. Chapter originally published in ***Jahrbuch der psychoanalyse,*** 1909.

The professional hypnotists of the prescientific era of this therapeutic method, the real inventors of the procedures, seem, however, to have chosen instinctively with regard to every detail, for their purpose of sending to sleep, and rendering pliant, just those ways of frightening and being tender, the efficacy of which has been proved for thousands of years in the relations of parent to child.

The hypnotist with the imposing exterior, who works by frightening and startling, has certainly a great similarity to the picture impressed on the child of the stern, all-powerful father, to believe in, to obey, to imitate whom, is the highest ambition of every child. And the gentle stroking hand, the pleasant, monotonous words that talk one to sleep: are they not a reimpression of scenes that may have been enacted many hundred times at the child's bed by the tender mother, singing lullabies or telling fairy-tales?

I lay no great stress on this distinction between paternal and maternal hypnosis, for it happens often enough that the father and mother change their parts. I only call attention to the way in which the situation during hypnosis tends to favour a conscious and unconscious imaginary return to childhood, and to awaken reminiscences, hidden away in everyone, that date from the time of childlike obedience. . . . All these considerations force one to the supposition that a preliminary condition of every successful suggestion (hypnosis) *is that the hypnotist shall figure as "grown up" to the hypnotised subject: i.e. the former must be able to arouse in the latter the same feelings of love or fear, the same conviction of infallibility, as those with which his parents inspired him as a child.*

To avoid any misunderstanding it must be pointed out with emphasis that not only is suggestibility (i.e. receptivity for ideas, with the inclination to blind belief and obedience,) here conceived as being genetically connected with analogous psychical peculiarities of childhood, but, further, it is our opinion that in hypnosis and suggestion "the child that is dormant in the unconscious of the adult" (Freud) is, so to speak, reawakened. The existence of this second personality betrays itself not only in hypnosis; it is manifested at night in all our dreams, which—as we know since Freud's work—have always to do with childhood reminiscences, and by day we discover the infantile tendencies and modes of functioning of our mind in certain "erroneous performances" and in all expressions of wit. In our innermost soul we are still children, and we remain so throughout life. . . . The view is that unconditional subordination to an external will is to be explained as simply the unconscious transference to the physician of affects (love, respect) originating in childhood, and erotically tinged. . . .

According to this conception, the application of suggestion and hypnosis consists in the deliberate establishment of conditions under which the tendency to blind belief and uncritical obedience present in everyone, but usually kept repressed by the censor (remains of the infantile-erotic loving and fearing of the parents), may unconsciously be transferred to the person hypnotising or suggesting.

2

Interpretations of Hypnosis



Clark L. Hull

The only thing which characterizes hypnosis as such and which gives any justification for calling it a "state" is its generalized hypersuggestibility. That is, an increase in suggestibility takes place upon entering the hypnotic trance. The difference between the hypnotic and the normal state is therefore quantitative rather than qualitative. No phenomenon whatever can be produced in hypnosis that cannot be produced to lesser degrees by suggestions given in the normal waking condition. The essence of hypnosis lies in the fact of *change* in suggestibility. If a subject after submitting to the hypnotic procedure shows no genuine increase in susceptibility to any suggestions whatever, there seems no point in calling him hypnotized, regardless of how fully and readily he may respond to suggestions and superficial sleeping behavior. Accordingly, the mere susceptibility to prestige suggestion, no matter in what degree, is not hypnosis. Its essence lies in the experimental fact of a quantitative *shift* in the upward direction which may result from the hypnotic procedure.

But why should the particular stimulations used in inducing the hypnotic trance produce this remarkable effect? No question in the whole subject of hypnosis and suggestibility is in such urgent need of critical experimentation.

A Habit Phenomenon

There remains the still more basic problem of the nature of that form of suggestion which is heightened during hypnosis. In our view, that form

Abridged excerpt from the concluding chapter of C. I. Hull. *Hypnosis and suggestibility: An experimental approach.* New York: Appleton-Century-Crofts, 1933. Pp. 391–400.

of suggestion is a habit phenomenon. Both hypnosis and waking suggestion manifest the classical behavior of habituation in remarkable detail. Learning the ordinary habitual responses to language stimuli is an essential component of acquiring the tendency called suggestibility.

The present view is closely akin to that held by Bernheim, who reduced suggestion substantially to the association of ideas. The view here presented reduces it to the strictly physical basis of the associations between stimuli and responses, ideas becoming purely physical symbolic acts.

From the introspective point of view, one of the most characteristic differences between actions performed through the influence of suggestion and ordinary acts is that the latter are usually felt somehow to be willed, whereas the former acts are felt not to be willed.

The basic assumption is that there exist two fairly distinct levels of habitual reactions, an upper or symbolic level, and a lower, nonsymbolic or instrumental level. Symbolic acts may best be described as pure-stimulus acts; acts which function purely as stimuli to evoke other acts. The most common form of symbolic or pure-stimulus acts is speech.

The symbolic act (speech) may be executed by one person and its instrumental sequel may be executed by another; this is believed to be the essential mechanism mediating heterosuggestion.

Responses to commands are conceived as being either voluntary or involuntary, though frequently the two mechanisms may be simultaneously active. In the case of an instant response to a sharp command such as might be given by an officer to a soldier, the reaction would presumably be nonvoluntary—a simple habitual reaction without involvement of the soldier's symbolic processes. A truly voluntary response to a command, on the other hand, would be a case in which the command first evoked an intraorganic symbolic sequence on the part of the subject, which finally led to a subvocal symbolic reaction substantially equivalent to the command emanating from the other person, which, in turn, evoked the reaction commanded. It is not inconceivable that suggestions might also set going a symbolic sequence in the subject similar to that caused by the command just considered, in which event we should probably have a case of simulation.

A suggestion response is one in which the subject's own symbolic processes, instead of becoming active either in facilitating or in resisting the tendency to action naturally arising from the experimenter's words, remain passive so far as the particular act suggested is concerned. This passivity is facilitated by the suggestions usually given for the subject to relax and not to think of anything but sleep. At the beginning it is rather difficult for most subjects to do this, so that the first responses to suggestion are both slow in taking place and slight in degree. As practice continues, however, skill in this inhibition of symbolic interference is gradually acquired.

A continuous stimulation by words associated with a particular act will

bring about the act, whether these words are those of the subject himself or of some other person. The most critical evidence indicating the reality of ideomotor action is that when a subject merely observes an action, he tends automatically to execute it.

The present hypothesis recognizes the role played by ideomotor action in hypnosis and suggestibility. It disagrees sharply with the view held by Braid and Bernheim, however, who believed that an idea is some nonphysical entity evoked in the subject's mind by the experimenter's words which somehow in the case of ideomotor action is able to muster the physical energy required to evoke the action suggested. According to the present hypothesis, the physical substance of an idea is a symbolic or pure-stimulus act. The proprioceptive stimuli arising from such acts, usually spoken words, are assumed when combined in certain patterns to have acquired during the previous history of the subject, through the process of association or conditioning, the capacity to evoke the reactions of which they are the names.

In much of the literature on the subject of monoideism the concept of ideomotor action is associated with that of attention. Indeed, the expression "dominant ideas" contains the essence of the concept of monoideism. According to the present hypothesis, monoideism means that the (proprioceptive) stimulus emanating from a single idea (pure-stimulus act) plays continuously upon the neuro-muscular equipment of the organism; this stimulation evokes the act of which it is the "mental equivalent." Attention in such a situation means merely that the organism reacts to a single stimulus without substantial change (disturbance from the intrusion of stimuli associated with conflicting action patterns) for an appreciable length of time. In the case of heterosuggestion and hypnosis, the conditions of attention or monoideism would be fulfilled when, either through the quiescence or the withdrawal of the stimulation arising from the subject's own symbolic processes (ideas), proprioceptive intrusions would be reduced. This removal of sensory competition would give the continuous stimulation emanating from the symbolic processes (ideas) of the experimenter a kind of right of way to the control of the subject's movements.

Thus we find in essential functional agreement the points of view of ideomotor action, monoideism, and attention when they are viewed as habit phenomena.

Suggestive Control over Certain Nonvoluntary Processes

One of the phenomena of hypnosis which has impressed workers profoundly is the fact that suggestion, particularly in the hypnotic trance, is sometimes able to evoke phenomena which the subject is presumed not

to be able to call forth voluntarily. This seeming paradox derives from the unwarranted assumption that voluntary control of physical processes is the maximum control possible. But in fact large numbers of physiological processes take place all the time quite beyond voluntary control. The paradox is further attenuated when it is recalled that conditioned stimuli regularly evoke reactions not possible to voluntary effort. There is reason to believe that all reactions susceptible to control by suggestion are ultimately capable of being controlled voluntarily by suitable conditioning to or association with proprioceptive stimuli arising from one's own symbolic activities. By this means may be produced a reaction which is susceptible of heterosuggestion yet incapable of voluntary control. The sequel to this would be for the subject himself to produce the reaction by speaking or "thinking" the conditioned stimuli.

3

Two Types of Hypnotic Trance and Their Personality Correlates



Robert W. White

During an investigation of the personality factors upon which hypnotic susceptibility depends, there appeared among the more suggestible individuals two distinct types of hypnotic behavior. So different were the impressions which these conveyed that it seemed hardly sufficient to assign comparative scores based merely on the depth of trance. In the older literature of hypnotism it was customary to describe different types of trance and to explore the possibility that hypnosis, though denoted by a single word, might consist of several distinguishable states, each with characteristics peculiar to itself. A careless neglect of indirect suggestion impaired the value of these speculations, so that recent investigators were encouraged to think of hypnosis as varying along the single dimension of depth. The writer himself proposed to adopt this very hypothesis; but when it appeared that a uniform technique provoked trances which varied not only in depth but independently in type, this comfortable simplification lost legitimacy. It seemed possible that different types of hypnosis occurred in different kinds of people, a fact which, concealed in a rank order, would, in turn, conceal whatever relationships might exist with other variables of personality.

Two Types of Hypnotic Behavior

At a certain point in the hypnotic test, the suggestion was given to each subject that his left arm had grown very heavy, and that he would presently

The Journal of Psychology, 1937, 3, 279–289.

find himself unable to lift it from the couch. After considerable repetition, he was at length challenged, "Try to raise your arm; it's much too heavy, it won't rise." If, in fact, the arm remained motionless, the hypnotist urged, "Try as hard as you can to raise it." Even among subjects who alike failed to overcome the suggestions of heaviness and immobility, the effect of these proceedings was not the same. The arm of one, who will be called *Zill*, lay inert on the couch, without a sign of tension, so that one could hardly believe he was trying to raise it. But with another, *Roll*, the arm grew tense, the muscles contracted, breathing and facial expression denoted an output of effort, yet the suggestion was not overcome. Still more striking was the difference in behavior when a few moments later the hypnotist removed his earlier suggestions, declared the arm to be again light, and said, "Now you can raise your arm; try it! It will rise now." Upon this command *Roll's* arm flew quickly into the air, without a sign of hesitation, but *Zill's* was as motionless as before. Not until the new suggestion has been repeated several times, with alternate coaxings and sterner commands, did his arm, still somewhat limp, rise very slowly a few inches from the couch. It was the same with each suggestion. *Roll* did everything that was suggested, visibly and promptly, even the waking up at the end, but *Zill* was throughout sluggish and inert, required urging to make any movement whatsoever, and afterwards threw off the drowsiness very slowly.

It is obviously difficult to make a comparative rating of trance depth between subjects whose behavior differs so radically. To outward appearance *Zill* was far more deeply "entranced" and slumberous. By ordinary rating methods, however, *Roll* would receive the mark signifying greater depth, since he realized more readily and completely the test suggestions such as catalepsy of the arm and post-hypnotic amnesia The degree of suggestibility which one attributes to these subjects depends on the particular suggestions chosen in making the evaluation. For the technique used to induce hypnosis is by its very nature paradoxical. Drowsiness, relaxation, and sleep are suggested with no less insistence than states of catalepsy, despite the fact that strictly speaking it is impossible to go to sleep and at the same time obey the hypnotist in trying to open the eyes, raise the arm, and so forth, failing or succeeding according to his momentary suggestion. "I was trying to sleep," a subject once rather justly complained; "your talking woke me up again." It is thus scarcely avoidable that greater weight should be given to one or the other of the operator's inconsistent requirements. *Roll* and *Zill* differ in their choice of alternatives.

In the present investigation twenty-eight graduate and undergraduate students took part in the hypnotic tests, which were conducted and scored according to the technique described by Barry, MacKinnon and Murray (1). Each subject was tested twice and scores were assigned from 5 to 0, the former representing positive response to all the test suggestions,

including post-hypnotic amnesia, the latter a complete absence of response. Thirteen subjects were scored 1.75 or higher, and among these, ten could be classified without hesitation, five in the "active" group behaving in the fashion of *Roll* and five in the "passive" category exemplified by *Zill*. The most striking and unmistakable criterion by which to classify a subject was the behavior upon removal of suggestions, the presence or absence of a marked delay and difficulty in opening the eyes, raising the arm, speaking the name, and so forth, following the statement that these things could now once more be done easily. Apparent lack of effort in attempting to overcome the original suggestion seemed to be perfectly correlated with this subsequent delay and difficulty, but provided a less plainly discernible criterion. These criteria, it is true, leave a small indeterminate borderland, but among the present subjects there was only one who fell within it; he was generally sluggish, but without some means of exact measurement one could scarcely say whether delay and difficulty were present or absent. The two other hypnotizable subjects were so rated because of amnesia rather than catalepsy; since they overcame the latter suggestions, these were naturally not removed.

No subject changed his type of behavior during a trial or from one trial to another; the differences appeared to this extent constant.

Views of Past Writers

It would be surprising if a division into two types of trance, appearing so simply and clearly in a group of unselected subjects, were to find no antecedents in the literature of hypnosis, and such, in fact, is not the case. Binet and Féré (3, p. 141) in 1888 described "active and passive types of somnambulism," quite apart from the threefold classification made famous by their master, Charcot. In the rival school of Nancy, the active and passive classification was explicitly not confined to deep hypnosis but was observed among the lightest trances. According to Bernheim (2, pp. 8–10), "some are conscious of being stupid, drowsy, or sleepy, and yet may have heard everything, but were no. able to make any movements, and could not throw off their drowsiness." Among these, suggestions frequently fail and questions are sometimes not answered, yet waking takes place without a start at a few words of command. On the other hand, "certain patients sleep lightly, answer questions, remember everything upon waking. Nevertheless, contracture, insensibility, automatic movements ordered or communicated, therapeutical suggestions, succeed well with them." More recently, active and passive trances have been described by Moll (5, p. 78) and distinguished by a criterion very similar to the one adopted in this paper:

> In some cases the passivity of the subject is so great that the suggestion of the experimenter is unable to overcome the muscular relaxation. Subjects

> of this kind let their arms drop after they have been raised, in spite of all suggestions. Questions are not answered, or only slight movements of the lips show that they have been heard at all. Two different types of hypnosis, which are called active and passive, may be distinguished by the absence or presence of this muscular relaxation. The passive form has a great external likeness to natural sleep, while the active might be taken for a normal state on superficial observation. . . . Hypnosis often shows itself as passive at the beginning: as soon as the eyes are closed the head droops forward or backward, because the supporting muscles of the neck are relaxed.

Method of Investigation

It is evident from these quotations that the types of trance which appeared in the present investigation were not accidental and peculiar to one group of subjects, but correspond to the active and passive types long recognized by masters of hypnosis. We may now ask how it is possible to account for the spontaneous appearance of these types, what factors of personality may be connected with the preference for active or passive hypnosis. Is there a difference of physiological state, or are we to look for the decisive factor in the realm of motivation?

The present investigation offers an unusual opportunity to look into the latter possibility. The hypnotic test was but one of a long series in which the subjects took part, a series designed to bring out many aspects of personality, but especially those of dynamic character. This procedure will be fully described in a forthcoming book by Murray (6); for the moment it must suffice to say that the personality ratings, based on a large quantity of material and assigned after discussion by a staff of twenty investigators, were of considerably more significance than ordinary scores derived from questionnaires and casual estimates.

With this equipment, the study of trance types can be conducted in two ways. It is possible to interpret the behavior itself, to infer the psychological state and reconstruct the attitudes of active and passive subjects in contrast, assisting one's guesses with whatever introspections the subjects vouchsafed. It is likewise possible to compare the two groups in respect to the different personality variables on which they were ranked.

Characteristics of the Types of Trance

The active subject behaves as if he were in a completely submissive state. He seems to fall in eagerly with the hypnotist's assertion, backed by the hypnotist's presumable wish, that his eyelids shall not move; in some instances he even dramatizes their paralyzed condition by a display of unsuccessful activity in neighboring muscles. He does what is suggested,

promptly and without urging, whether it be to move or to lie still, to sleep or to wake. He acts as if his dominant need in the experiment were to be controlled by the hypnotist, to yield initiative and be his willing instrument.

In contrast to this, the passive subject seems bent on immobility. He can be made to move, or to wake, only by urgent efforts on the part of the hypnotist, while suggestions involving paralysis fall in so completely with his mood that he scarcely expends the energy required of him in the attempt to overcome them. It does not seem that he is particularly concerned with the hypnotist and his wishes; occasionally, a passive subject is able to pronounce his own name following the suggestion that the sound will stick in his throat, only to fall completely silent when told that the word will come out with ease. The passive subject behaves as if his dominant need were to enter a sleep-like state, free from the necessity of expending energy. He wishes to be undisturbed, and is likely to resist those commands which threaten to break up his quietude, resuming the responsibility of waking life with sighs and signs of displeasure.

Such is the impression one gains from external observation of the hypnotic behavior. The introspective reports, while not so clearly differentiated that they could be sorted with confidence, furnish frequent confirmation. Three subjects, all of the active group, included in their remarks flattering comments about the hypnotist; from the same group came occasional signs of eagerness and pleasure in regard to hypnotism: "Will there be another experiment along this line? That's good!" declared *Bulge* emphatically after his first session, and *Knumb* entered the room for his second with the words, "Hypnosis? Good! I've been looking forward to it with desperate eagerness." Describing the hypnotic experience afterwards, *Vale*, of the active group reported, "It was a pleasure to do what you said. I was so sure I wanted to do what you said that nothing could persuade me to do otherwise." And *Bulge*, who professed to enjoy hypnosis more than any other session, told his listener at a subsequent interview, "I was just waiting to hear his voice; whatever he told me to do, I would have done it. I suppose if he had told me to jump in the river, I would have done it." Both *Vale* and *Bulge* thus explicitly describe the pleasure of obedience; to carry out the hypnotist's wishes has become for the time being the subject's wish.

In marked contrast stand the introspections of passive subjects, which reduce the importance of the hypnotist and place the emphasis on a state of unconsciousness or sleep. "I was disappointed," said *Veal*, "I couldn't fall away from the actual surroundings. I was aware that he was still in the room; I could hear him speaking to me." It is plain from this that *Veal* wanted to obliterate both the world and the hypnotist. *Akeson* suffered a similar disappointment, which he expressed in these words: "I'm afraid I couldn't let myself go; consciously I tried to, but something was holding

me back. I felt as if I were just on the brink of floating off some place or falling into some kind of a state, but not quite over." *Zill* reduced the factor of obedience almost to nothing in his statement, "Through his suggestions I talked myself into it"; while *Sims* declared himself less concerned with the hypnotist than with a stream of free associations "like before going to sleep."

Inferences drawn from visible behavior seem thus supported in a convincing number of cases by introspective reports. The active subject cares primarily for obedience to the hypnotist, who bulks large in the relationship. The passive subject, indifferent to the operator, is chiefly concerned to fall into a state of sleep-like repose. We may next inquire whether the individuals who thus differ in their hypnotic behavior and idea of hypnosis, who thus seem to choose between the two possibilities inherent in hypnotic technique, show significant differences in respect to any variables of personality.

Personality Correlates of the Types of Trance

Mention will be made of seven variables upon which the scores of the active and passive groups show interesting departures from chance distribution. In Table 1 appear the mean ranks for each group; it will be

TABLE 1

MEAN RANKS OF ACTIVE AND PASSIVE HYPNOTIC GROUPS ON PERSONALITY VARIABLES

	Active	*Passive*
Need for Deference	6 4	12.8
Need for Affiliation	5 2	21.6
Need for Dominance	11 0	24.6
Need for Counteraction	13 2	23.0
Need for Infavoidance	19 0	6 0
Need for Abasement	11 2	3.6
Anxiety	16 0	4.8

Total number of subjects, 28. Active Group, 5; Passive Group, 5.

remembered that the whole number of subjects ranked was twenty-eight. With the exception of *Anxiety*, all the variables are given the caption "need." Need is thought of in Murray's (6) scheme as a hypothetical force or tension within the organism aroused by certain kinds of stimulus-situation and provoking persistent activity until an end-situation is reached which restores equilibrium. The best criterion for distinguishing a certain need in a subject's behavior is the production by him of a certain effect, the attainment of a specific end-situation; but often enough the trend of an interrupted activity can be inferred. One need is distinguished from another by the

character of this effect or end-situation. Each need, in addition, has a quantitative aspect, its strength, which can be inferred from the frequency and readiness of its manifestation in a subject's ordinary behavior. The rank orders from which the means were calculated thus signify in each case the strength of the need.

It is at once apparent in the Table that the active group departs widely from the average in regard to two variables. These subjects rank high on the *n* (need for) Deference and *n* Affiliation. This means that in their everyday behavior they are much inclined (*a*) to find and follow leaders, gladly yielding to their influence, and (*b*) to seek the company of friendly persons, endeavoring to please them and win their affection. These tendencies are the very ones which appeared to be at work during the hypnotic sessions: the active subjects were but behaving characteristically when they made themselves agreeable to the hypnotist and found pleasure in obedience. The passive subjects, on the other hand, who treated the operator with such indifference are found to rank low in regard to the *n* Affiliation. They fall still lower on the *n* Dominance, indicating on their part a weakness of the tendency to influence or control the behavior of others. The active group exhibits such a tendency in somewhat more than average degree.

These findings at once shed light on the generally negative and sometimes conflicting results hitherto obtained, as Hull (1, p. 91) has shown, from experiments which attempted to find the personality correlates of hypnotizability. Affiliative behavior forms part of the concept of extraversion as used in questionnaire tests such as the Neymann-Kohlsted. Dominant behavior is one of the elements measured by the Allport Ascendance-Submission Test. But the active and passive subjects separate into two groups, *without any overlapping*, on just these two variables. An hypnotic rank order brings to the top two kinds of individuals utterly unlike in regard to affiliation and dominance, thus completely obscuring the very real relationship which these tendencies sometimes bear to hypnosis.

There remains unmentioned one characteristic of the passive trance, the apparent desire to sleep and be undisturbed. The four remaining variables, upon which the subjects of the passive group occupy extreme ranks, together form a recognizable picture of personality which is relevant to this point. The *n* Counteraction has for its effect the mastering of failure or humiliation by restriving, while the *n* Infavoidance shows itself in avoiding these difficulties by retreat. It is the latter course which the passive subjects habitually pursue, and quite in keeping is their extreme rank on the *n* Abasement, manifested in passive submission to external force, blame, or criticism, with a willingness to confess inferiority or defeat. These feeble attitudes toward difficulties and competitive situations fit well with the high standing on Anxiety, the amount of nervousness, embarrassment, and confusion, together with autonomic manifestations shown in behavior. It

is probable that we have to do with the kind of individual who is a victim of ready anxiety, and therefore finds it difficult to assert himself with force if the situation is at all pressing. The hypothesis suggests itself that such a person would welcome a passive state free from anxiety, and not less so if he were expecting a competitive test or a possibly embarrassing interview. It is otherwise difficult to explain why anxiety should appear in a positive relationship to hypnosis. Every operator must have observed instances where anxiety led to complete resistance. In the present experiment the operator sought to allay fears by adopting an unpretentious, affiliative attitude and by putting the session in the most benign possible light. With several subjects these efforts were ineffectual, but the five of the passive group, though frequently nervous in everyday life, apparently accepted his estimate of hypnosis and showed scarcely a symptom of anxiety during the trials.

It is encouraging to find that different lines of evidence converge upon common conclusions. The active subject behaves like a willing instrument of the hypnotist's will, declares that he enjoyed this submission, and turns out to be the kind of person who tends toward friendly deference in everyday social relations. The passive subject seems bent on quietude, resists and declares disappointment at whatever threatens to disturb it, and proves to be the sort of anxious individual who might well be expected to covet the freedom of repose. The hypnotist deals with natures predisposed to select and respond to one or the other of his not wholly consistent suggestions, obedience and sleep. His technique, outwardly uniform, is by no means uniformly perceived by the subjects, and their expectations, if not their wishes as well, determine the type of trance behavior which results.

Summary

In hypnotic experiments it is not difficult to distinguish two types of trance which correspond to the active and passive varieties mentioned by Moll, Bernheim and others. The most readily observable criterion is the absence or presence of a delay and difficulty in making movements when it has been suggested that they will occur easily. Of the group here reported, eleven subjects were sufficiently hypnotized to exhibit the criterion; five were active, five passive, and only one defied classification.

From both outward appearance and introspective report, the active subject seemed to be an eager participant who enjoyed his state of submission, while the passive one seemed concerned with repose and inclined to resist its disturbance. It was as if they responded selectively to the somewhat inconsistent requirements – to sleep and at the same time to be constantly suggestible—embodied in hypnotic technique.

The reported group, numbering twenty-eight, served also as subjects for an extensive personality study by the Clinic staff. The active subjects were found to have especially strong tendencies in everyday life toward deferential and affiliative behavior, the very characteristics which they displayed during the hypnotic sessions. The passive subjects received extreme ranks on a group of variables which implied habitual anxiety in stressful situations; there was reason to suppose, especially since they showed no agitation during the sessions, that they found in the hypnotic sleep an agreeable freedom from this unpleasant affect. The subjects' attitudes thus appeared to have determined the type of hypnotic trance.

A rank order which represents merely the depth of trance brings to the top at least two quite different kinds of people. It is doubtless for this reason that investigations into susceptibility conducted by correlation methods have hitherto yielded no consistent results.

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4

A Preface to the Theory of Hypnotism



Robert W. White

Hypnotism has been the object of wonder and speculation ever since its promotion by Mesmer more than a century and a half ago. Oddly enough, the interest shown by ordinary people and by literary men has only rarely been matched among scientists. Science is the outgrowth of human curiosity, but the trained scientist often appears to be the least curious of mortals because he has imposed upon himself such rigorous conditions for satisfying his need. Thus in 1784, when Mesmer's cures were the talk of Paris, a commission of scientists dismissed his findings on the ground that the phenomena, though real, were the result of imagination, hence not of the physical stuff with which science could safely deal. Branded with this scarlet letter, ejected from the better consulting rooms, hypnotism was destined to wander for a hundred years in the slums of medical practice, from which disgrace she was not rescued until the eminent neurologist Charcot picked her out of the gutter, examined her reflexes, and pronounced her worthy of a place in medical research. More recently, through similar good offices by Hull, she has been allowed to enter the portals of experimental psychology, where in the last fifteen years she has begun to live down her reputation, learn the manners of the laboratory, and speak the language of polite science. Yet so recent is her social ascent that even in contemporary studies of hypnotism there occasionally seems to linger the atmosphere of magic and darkened rooms rather than the clear light of reason.

It is psychology's misfortune that hypnotism has only just now been admitted to a place among its methods and problems. For hypnotism is one of the few experimental techniques applicable to human beings whereby it is possible to produce major changes in the organization of behavior. Without discomfort or danger to the subject, provided certain precautions

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have been taken, it is possible to effect an extensive alteration in those patterns of experience which constitute the self and in those controls of behavior which we know as volition Had it used a technique which really affected volition instead of the method of fleeting observation pursued with such slender profit by Ach and Michotte, the experimental psychology of will might have survived and prospered With the aid of hypnotism it is possible to reproduce, artificially and temporarily, the diverse symptoms of hysteria or with equal ease to make a manageable laboratory model of compulsion neurosis By the same means, one can create an artificial "complex," make it effectively "unconscious" and, for the first time under controlled conditions with known antecedents, study the eruption of unconscious strivings into the normal stream of behavior and the methods of defense set up against them Since no two people respond to hypnotic technique exactly alike an avenue is opened up for the study of individual differences in the control and organization of behavior Furthermore, hypnosis as a social situation offers an excellent opportunity to understand more clearly the influence one person can have upon another, it provides an experimental method for building out from Le Bon's intuitions concerning group behavior and carrying forward a study which does not grow less important in our time With the aid of hypnotism, in short, it is possible to investigate a variety of difficult but extremely significant psychological problems To complain that the more complex processes of human behavior are inaccessible to experimental technique is certainly premature

In view of this promise of things to come it is important to keep a sharp and critical eye roving over the theory of hypnotism The foundations hastily laid in the days of animal magnetism may give way unexpectedly under the superstructure which is now beginning to arise The writer believes that certain basic misconceptions have secretly lodged themselves in the theory of hypnotism like termites boring in the sills The central difficulty, as he will try to show, is the stubborn persistence of mechanical ideas and mechanical figures of speech to describe what is essentially a human situation involving a delicate interplay of human strivings Modern students of hypnotism, he believes, have rarely taken the trouble to shake out of their minds such notions as animal magnetism, trance states, and ideo-motor action Despite the sad object-lesson of Charcot most cautious of scientists who nevertheless came to a series of wrong conclusions because he overlooked the subtleties of indirect suggestion, they have failed to consider exactly what the hypnotist communicates to his subject, exactly how the subject understands it, and exactly what he tries to do about it Before it can make its proper contribution to the understanding of behavior, hypnotism must become a sophisticated chapter in social psychology Only then will it be possible to study the nature of the hypnotic state without confusing the issues from the very start

Facts that Require Explanation

To begin with, we shall review briefly the facts that any theory of hypnosis is called upon to explain. What are the characteristics which make hypnosis a perennial object of wonder and amazement? Three things appear to create surprise. One of these is that the hypnotized person can effectuate suggestions lying outside the realm of ordinary volitional control; he can do things that he could not possibly do in the normal state. No less surprising, however, is the way a hypnotized person carries out those suggestions lying within the realm of volition. Stiffening the arm or clasping the hands are actions that anyone could perform volitionally, but in hypnosis they occur without benefit of volition, unaccompanied by the experience of intention, yet at times so strongly that the subject seems unable to arrest them when he tries. Furthermore, hypnotic actions are carried out with a curious lack of humor and self-consciousness, often with an air of abstraction and drowsiness, and they do not seem to have the claim over subsequent memory to which their recency and importance entitle them. Finally, it is a constant source of amazement that these rather drastic effects can be brought about simply by talking. If a person suffered a head injury, took a drug, or was worked into a state of violent emotion, radical changes in the control of behavior would be expected as a matter of course, but no one can believe that mere words entering the ears of a relaxed and drowsy subject can be sufficient cause for the changes which actually take place. It will repay us to consider each of these items in a little more detail.

1. *Hypnotic transcendence of voluntary capacity* is strikingly illustrated by insensitivity to pain. One of the most dramatic chapters in the history of hypnotism is its use by James Esdaile about 1845 as an anaesthetic in major surgical operations. There is still no more convincing way to persuade a sceptic that hypnosis is "real" than by showing that ordinarily painful stimuli can be endured without signs of pain. Carefully controlled experiments designed to exclude every possibility of error have reaffirmed the reality of this phenomenon and have shown that the inhibition extends to such non-voluntary processes as pulse rate and the galvanic skin reaction (5; 25). Along somewhat different lines, recent experiments show that muscular strength and resistance to fatigue are at least somewhat increased (33) and that recall is substantially improved in consequence of hypnotic suggestions (26; 30). There is still some reason to believe that older claims concerning the production of blisters, cold sores, and digestive reactions are not without foundation, although the investigation of these topics has suffered from a lack of control experiments (10; 11; 21). Whatever the ultimate decision upon one or another of the latter claims, there is no danger in concluding that hypnotic suggestion can produce a number of effects beyond the realm of volition, and that among these effects is an

increased control over autonomic functions. The implication of these facts for a theory of hypnotism will be considered in a later section.

2. It is not necessary, however, to depend upon these facts of transcendence in order to demonstrate that hypnotic behavior differs from voluntary. If we confine ourselves to actions which could perfectly well be performed intentionally, there is still a *distinct difference in the way they are performed* in response to hypnotic suggestion. When retrospection is possible, as often happens after relatively light hypnosis, a crucial difference in the accompanying experience can be recognized. Janet reports that a patient, ordinarily suggestible, one day declared that the suggestion "did not take." "I am quite ready to obey you," she said, "and I will do it if you choose: only I tell you beforehand that the thing did not take" (12). This patient clearly recognized the difference between obedience, when one intentionally carries out another person's command, and suggestion, when the action executes itself without the experience of intention, even in defiance of it.

Bleuler, describing his experiences when hypnotized, said, "I felt my biceps contracting against my will as soon as I attempted to move my arm by means of the extensor muscles; once, on making a stronger effort to carry out my intention, the contraction of the flexors became so energetic that the arm, instead of moving outward as I had intended, moved backward on the upper arm." "At other times," he said again, "I felt that the movement was made without any active taking part by my ego, this being especially marked with unimportant commands" (8).

One of the writer's subjects reported himself as "quite marvelling at the way my arm stayed up, apparently without volition on my part. I was still aware of myself off in a corner looking on." Observations such as these could be multiplied indefinitely, but further emphasis is scarcely necessary. It is sufficient to remember that subjects after light trances can almost always give evidence concerning their susceptibility, and that their own spontaneous criterion is whether or not they had the feeling of collaborating in the production of the suggested actions. Though there is a hazy borderland between intentional and automatic acts, in the majority of cases subjects can readily discriminate between the two. Hypnotic suggestion not only transcends the limits of volitional control but also dispenses with volition when bringing about actions which normally lie within those limits.

Subsequent report is frequently impossible because of post-hypnotic amnesia. Even so there is an appreciable difference between hypnotic behavior and the everyday intentional performance of like actions. For one thing, the subject's manner differs from the ordinary: he seems literal and humorless, he shows no surprise and makes no apology for bizarre behavior, he appears entirely un-self-conscious, and very often he acts abstracted, inattentive, almost as if he were insulated against his surroundings. Braid's

notion of monoideism serves very well to describe the impression a hypnotized person makes on an outside observer. For another thing, hypnotic behavior does not seem to occupy a proper place in the subject's memory. He disclaims recollection of recent and often very complicated actions which in the ordinary way he seems to have every reason to remember. Thus, whether we choose an introspective criterion or whether we prefer external observation, we are entitled to be surprised at the difference between hypnotically suggested actions and similar actions intentionally performed.

3. *The procedure by which hypnosis is made to occur does not seem adequate to produce such an effect.* So great is this discrepancy that for many years it was customary to assume a magnetic force, an invisible fluid, or some similar powerful agent, passing from the operator into the subject. With the decline of such theories there has been a tendency to argue that the phenomena of hypnosis are after all not unique, that under suitable conditions they can all be duplicated without resort to a hypnotic procedure. It is known, for example, that under stress of excitement and violent emotion people surpass by a wide margin their usual levels of muscular strength and endurance. In like circumstances there is often a considerable degree of anaesthesia for the pain of fairly serious injuries. Hypermnesia occurs during free association, in drowsy states, and in dreams. Many actions which cannot be initiated by themselves without the experience of intention take place quite involuntarily when embedded in a context of other actions, as in playing a game. Perhaps these claims are justified; perhaps there is no phenomenon in the repertory of hypnotic suggestion which cannot be produced in some other way. But, even if this be true, we are not exempt from explaining why the hypnotic procedure, which does not create excitement and violent emotion, which does not put one to sleep, which makes no use of free association, which virtually excludes a context of other actions, and which especially with practice requires very little time, brings about so momentous an effect. It is legitimate to be surprised at the power of hypnotic suggestion.

The task which confronts a theory of hypnosis is roughly defined by the three foregoing peculiarities. Any such theory must explain how (1) the hypnotic procedure brings about (2) the non-volitional performance of acts that ordinarily require volitional assistance and (3) the performance of acts outside the normal range of volition.

Hypnotic Behavior as Goal-Directed Striving

When Charcot discovered that it was possible to reproduce the symptoms of hysteria by means of hypnosis he surmised that the two phenomena were closely related, indeed that they were aspects of the same underlying condition. This dubious bond, however, was not sufficient to keep hypnosis

and hysteria long on an equal footing of medical interest. Thus it happened that the theory of hypnotism lingered at the Salpêtrière stage, while the theory of hysteria advanced steadily from Charcot's time to the present, becoming at last the basis for a new understanding of all neurotic conditions and the starting-point for modern dynamic psychology. The central insight which transformed the theory of hysteria was the idea that symptoms spring from strivings, that neurosis is an outcome of conflict among fundamental impulses rather than a damaged state of the nervous system. Such a view would have been impossible without the still more basic insight that large parts of a person's striving may take place unconsciously, forming no part of his organized picture of himself and his intentions. In psychopathology these once radical notions have gradually worked their way to acceptance.

The benefits of this progress have been largely withheld from the theory of hypnotism. Two concepts, *automatism* and *dissociation*, once useful in understanding hysteria but long since modified, reshaped, and animated with dynamic ideas, have persisted in a peculiarly literal and lifeless form in hypnotic theory. Automatism, invoked to explain the non-volitional character of hypnotic behavior, implies that hypnotized persons are helpless executants of the operator's will as this is expressed in verbal suggestion. Dissociation, called upon to account for amnesia, post-hypnotic phenomena, and those instances when impressions seem to be excluded from awareness or when intentions fail to govern motor processes, implies the subject to be in a state of temporary fragmentation such that different parts of his behavior take place independently without their usual communication. These ideas deserve the respect which is due to first approximations, but their prolonged survival keeps the theory of hypnotism in swaddling clothes when it should be grown to adult stature.

The concept of striving, so useful in other parts of psychology, needs to be applied in thoroughgoing fashion to the behavior of the hypnotized person. This application may be embodied in the following statement: *hypnotic behavior is meaningful, goal-directed striving, its most general goal being to behave like a hypnotized person as this is continuously defined by the operator and understood by the subject.* This point of view is not original with the present writer, having been previously maintained by Rosenow (23), Lundholm (15), Pattie (19; 20), and Dorcus (4), who have found it more satisfactory in explaining the facts subsumed under both automatism and dissociation. The hypnotized person is seen not as an almost inanimate object, upon which strange effects can be wrought by touching the right levers or tapping the right lines of cleavage, but as a human being who hears and understands and who tries to behave in the different ways which are proposed to him. The adoption of such an hypothesis should not, of course, depend upon one's general preferences in psychological theory. It is the argument of the present paper that hypnotic behavior, on the face of it, can be adequately described and adequately understood in no other way than as goal-directed striving.

1. *Automatism.* We shall examine first the reasons for preferring the

concept of striving to that of automatism. Hypnotists, who write the theories of hypnosis, have preferred to allocate all the striving to themselves. Certain facts, to be sure, have always stood up to combat this attitude of omnipotence. Many people cannot be hypnotized at all, and no careful operator embarks on his enterprise without assuaging the subject's natural fears and building up a feeling of confidence—without trying, in other words, to set at rest antagonistic strivings. It has long been known, furthermore, that hypnotized subjects can successfully resist, often if not always, suggestions which are repugnant to their own deeper tendencies. But in spite of these hints, hypnotists have rested comfortably with the idea that subjects, unless activated to some kind of resistance, functioned as passive instruments through which words were transformed into actions. Such a view is maintained by Hull in the following words:

> A true suggestion response is one in which the subject's own symbolic processes, instead of becoming active either in facilitating or resisting the tendency to action naturally arising from the experimenter's words, remain passive so far as the particular act suggested is concerned. . . . This withdrawal of the subject's symbolic activities would naturally leave his muscles relatively susceptible to the symbolic stimulation emanating continuously from the experimenter (11, 397).

This theory, which is admittedly a modernized version of ideomotor action, requires considerable bolstering before it can explain how the hypnotist's symbolic stimulation, even when in full possession of the subject's muscles, can bring about effects which the subject's own symbolic activities are powerless to achieve. But it becomes still more inadequate when one recollects that hypnotized persons carry on long trains of activity, improvise details, exert themselves to calculate and remember, and in general produce a complex pattern of behavior for which the initial suggestion is certainly not a sufficient cause or a sufficient explanation. Hypnotized subjects make substantial spontaneous additions to what is stated in the suggestion, a fact which marks the difference between automatism and a goal-directed striving to act as if hypnotized.

The shortcomings of automatism may be illustrated by a few examples which could be multiplied indefinitely. Prince (22), Burnett (2), and others have reported experiments in which it was suggested to subjects that they perform difficult mental feats such as adding three-place numbers in their heads or making unusual calculations like the number of seconds intervening between 10:43 and 5:13 o'clock. These and similar calculations were successfully made without awareness when other matters occupied the focus of attention. Even if they had been done without this complicating feature, they would strain to the breaking-point any acceptable meaning of automatism. School teachers will surely not agree that when they ask children to solve a problem of addition, a "natural tendency" arises from their words which, in the absence of outright resistance, gets the problem solved. To take

another example, Erickson (6) has reported a number of experiments in which post-hypnotic suggestions were framed in very general language, the details of their execution being left to the subjects. For instance, a subject was told that he would be bored by a conversation and that while trying to appear interested he would look around for distractions which might be used to end the tedium. The subject executed the suggestion in spite of hindrances interposed by the assistants, choosing an appropriate distraction and calling to his aid unconscious irony and a telling slip of the tongue. Once more the concept of automatism seems totally out of place; the hypnotized person plays altogether too active and too discriminating a part to be regarded in this light.

It is unnecessary to linger over this question except to point out again the backwardness of hypnotic theory and its subjection to outworn concepts. The automatism theory arose at a time when there were supposed to be two distinct levels of behavior, the level of purposive volitional striving and the level of reflex machinery. Since hypnotic behavior clearly did not belong to the volitional level, it had to be classified as some kind of automatism. This arrangement was no more than a recognition of the fact that such behavior took place without the experience of intention, that it seemed to the subject himself to occur of its own accord. In recent years, however, the dichotomy of levels has completely broken down: goal-directed striving no longer necessarily implies either awareness or intention, and nothing, therefore, can be gained by trying to force hypnotic phenomena into the automaton category. Hypnotic theorists may well follow the lead of psychopathologists in putting aside such concepts as ideomotor action.

2. *Dissociation.* In spite of its honorable place in history, the concept of dissociation has a distinctly harmful effect on present thinking about hypnotism. In another place the present writer and Shevach (32) have reviewed in detail the several ways in which dissociation has been invoked to account for the phenomena of hypnosis. They were led to conclude that it aptly describes only certain limited aspects of hypnosis and that it no longer deserves to be considered a key concept for understanding this state. A crucial advance in the theory of hysteria came when Freud added the notion of striving to Janet's dissociation.

> We do not derive the psychic fission from a congenital lack of capacity on the part of the mental apparatus to synthesize its experience, but we explain it dynamically by the conflict of opposing mental forces, we recognize in it the result of an active striving of each mental complex against the other (9).

The theory of hypnotism is entitled to a similar advance: when the hypnotized person acts in a dissociated fashion it is because the suggestion is so framed that separated strivings are required to carry it out.

Once again, we must justify this view by an appeal to hypnotic

phenomena, by showing that the behavior which exemplifies dissociation can be better understood as goal-directed striving. At first glance it might seem that if a subject is made blind by suggestion, this fact is well described as a dissociation of his visual system. Similarly, if one leg is rendered insensitive to pain or if the events of the trance are wiped out of memory, it seems not inappropriate to refer to dissociated systems. Again, the post-hypnotic performance of two simultaneous tasks surprises us mainly because of the apparent isolation of functions which we expect will interfere with each other. But a closer scrutiny of just what can be produced by hypnotic suggestion puts the problem in a new light. It is quite easy, for instance, to dissociate not visual function as a whole but simply the perception of one person in a crowded room, or the perception of face cards in a spread-out pack, or any other quite arbitrary fragment of the visual field. Memory for the hypnotic trance is similarly divisible: the subject may be made to forget all but one incident, or to forget only one. For such phenomena the concept of dissociation yields rapidly diminishing returns. When the system which is dissociated ceases to be a plausible biological unit and becomes an arbitrary grouping of items plastic to whatever suggestion the hypnotist happens to make, and freely changeable at his whim, then the hypothesis of striving fits the facts much more closely. "When you suggest an insensitivity," as Lundholm (16) puts it, "your suggestion sets up an impulse to behave as if the insensitivity obtained."

There is still further reason for doubting the value of dissociation and preferring the concept of striving. Dissociation implies a real insulation of one system from another, a boundary marked by amnesia and lack of interaction. It is very easy to show, however, that the dissociated system is not insulated at all but instead exerts a constant influence on the total behavior. To take one example, let five of a dozen white cards on the table be marked with a small cross; then suggest to the subject that he cannot see the marked ones, and ask him to count the cards. His total of seven can be arrived at only if he apprehends the cross-marks and skips those cards in his count. Such experiments work so well that onlookers become distrustful, but the very same subjects can be exonerated from complicity by suggestions that cause them clearly to transcend their voluntary capacity.

It has been argued thus far that the concept of a goal-directed striving to act like a hypnotized person accounts for the facts of hypnosis better than the notions of automatism and dissociation. Automatism was held to be invalidated by the presence of substantial spontaneous additions to what is stated in the suggestions. Dissociation was discredited by two findings: (1) the biologically implausible, arbitrary, changeable nature of the systems alleged to be dissociated, and (2) the active participation of the supposedly insulated items in the total pattern of behavior. It remains to point out certain ways in which the rejected concepts have corrupted the theory

of hypnotism and to show that the striving hypothesis makes a favorable difference.

3 *Application of goal-directed striving* A typical instance of hypnotic suggestion, often used for purposes of demonstration, is catalepsy or suggested immobility of one of the limbs The operator declares that the extended arm has become rigid, that it is impossible to move it, that if the subject now makes the attempt he will find he cannot move it What happens is described as follows by McDougall·

> And now the patient will fail to achieve a forbidden movement not merely because he cannot or will not make the necessary effort, but because, when he tries to make the movement and succeeds in innervating the proper muscles, the antagonistic muscles come into play and prevent the movement At this stage, then, there is manifested a certain splitting of the personality, a conflict of one part against another· the muscles of one set obey the one part the conscious willing subject, the antagonistic muscles obey some other part of the personality, which understands and is subservient to the commands and suggestions of the operator (7)

We are entitled to wonder, in reading this account, whether a dissociation exists anywhere except in the thoughts of the operator One set of muscles, we can agree, "understands and is subservient to" his suggestions, but we do not need to assume that the other set is differently disposed, for it, too, has precisely obeyed his command to try and his suggestion to fail Realizing this, we can abolish altogether the fiction that the patient is divided and that the operator has spoken separately to the two parts It appears instead that the hypnotized person has fully understood the operator s intention and has subserviently enacted a pattern of behavior which consists of stiffening the arm, then trying and failing to bend it The subject is not dissociated nor is one part of him functioning as an automatism, he is striving to behave like a hypnotized person, as this has just been defined by the operator

It is important to notice that in substituting this hypothesis for the older ones we are not explaining away the mystery of hypnosis nor accusing the subject of deception Often the hypnotized person exhibits surprise, sometimes even alarm, when he discovers that the suggestion has taken effect and that what he conceives to be his will cannot break up the pattern set by the operator What he does not realize, however, is that it was not "truly" his will to overcome the suggestion Had it been "truly" his will, he would have succeeded, and been pronounced an insusceptible subject, as happens in many cases But if the motive of behaving like a hypnotized person is regnant, the operator's command to try to overcome a suggestion calls for a token display of will which the subject secretly hopes will not prevail There can be no justification for assuming that he does not understand the operator's hopes and intentions, or for supposing that one command can be isolated from the total pattern and

attached to a separate part of his personality. The vain struggle of the hypnotized person is an instance of willing when you do not want your will to succeed, a situation in which we need not be surprised to find volition singularly ineffective.

On the other hand, even in this simple example we do not propose to minimize the difference between hypnotic behavior and voluntary compliance in a wide-awake, alert state. The subject's surprise, the changes in his experience of intention, the unwitting character of his collaboration, all serve to remind us that hypnotic behavior, the striving to behave as if hypnotized, takes place in an *altered state of the person.* This assumption becomes still more necessary when we consider those phenomena which transcend the usual limit of volitional control. Our hypothesis declares that anaesthesia, for instance, is a striving to behave as if part of the body were devoid of feeling. We know that in the normal state, let us say in the normal hour at the dentist's such a striving is doomed to failure. As we shall see in a later section it is impossible to dispense with the idea of a hypnotic state which permits certain types of striving to achieve unusual success. Our present argument claims no more than that hypnotic behavior, if looked squarely in the face without preconceptions about the state, inevitably appears to be a goal-directed striving.

We shall now pass directly to the end of the hypnotic trance and to the post-hypnotic phenomena which have played so great a part in experimental studies. It is here that the notions of automatism and dissociation have worked their most disastrous effect. Let us consider as an example the experiments of Messerschmidt (18) designed to test the alleged independent operation of conscious and subconscious activities. It was suggested to a subject in hypnosis that upon being awakened he would perform subconsciously a stated mental task. After the awakening he was assigned a second task which in the nature of the case had to be performed simultaneously with the subconscious task, permitting the investigator to measure interference between the two. Erickson and Erickson (7) have recently exposed the serious misconception which underlay this work. Messerschmidt supposed that she could initiate one task by suggestion given in hypnosis, then wake the subject with amnesia and set in motion a second task dissociated from the first. So firm was her belief in the reality of this dissociation that she did not feel it necessary to conceal from the hypnotized subject that a second task would be added after waking. In reality, therefore, she gave a single post-hypnotic suggestion to perform two simultaneous tasks, one of which was described forthwith and the other defined a little later. The net result of this experiment was to disprove dissociation between two tasks wrongfully assumed in the first place to be dissociated. As the Ericksons point out, "to suggest to the hypnotized subject that he will do one task 'subconsciously' and another task 'consciously' will serve only to elicit post-hypnotic performances of both tasks and not a waking performance

of one, despite the greater degree of conscious awareness of it, which itself constitutes an additional post-hypnotic response."

This example brings us to the verge of a far-reaching new insight into the nature of post-hypnotic behavior. The argument of the Erickson's paper, as it happens, rests with the statement that when a subject executes a post-hypnotic suggestion he falls into "a spontaneous self-limited post-hypnotic trance" having various demonstrable properties. Let us take the one remaining logical step and declare that the state which follows upon the operator's command to awaken is itself a suggested state. Hypnotists glibly and none too modestly assume that their subjects wake up merely because they tell them to do so. The command to awaken, however, is a perfect example of post-hypnotic suggestion. The subject is told, in effect, that to behave like a hypnotized person now means to act as if he were wide awake, except that any suggestions already given are to be considered as more nearly embodying the operator's intentions than remarks which he may forthwith introduce. There will be no more suggestions, and the subject must open his eyes, move about, and join in normal conversation. Just how and when he really emerges from the hypnotic state we can say only after we have looked more closely at the nature of that state. At this point we maintain merely that a subject just awakened from hypnosis is still striving to behave like a hypnotized person, that his attempt to act awake, an attempt which is not always entirely successful, must be considered a specimen of post-hypnotic suggested behavior.

Similar considerations apply to post-hypnotic amnesia. Although the degree of forgetting can be much greater than we would expect in the absence of an altered state of the person, the starting point of post-hypnotic amnesia is a striving to behave as if the events of the trance were forgotten. Often when the hypnosis has been light this fact is apparent to the subjects themselves. Following is a sheaf of spontaneous remarks made when subjects with suggested post-hypnotic amnesia were afterwards asked what they could remember of the trance:

> (a) I feel that if I thought hard enough I could remember, but I just can't get down to business.
> (b) I haven't any inclination to go back over it.
> (c) Something is holding back my memory.
> (d) My mind doesn't want to think.
> (e) I notice I have a lot more trouble trying to recall. I get as far as the eye suggestion and then my thoughts go off into something else.
> (f) I do remember but I can't say. I can't think of the word . . . (Later) I could remember it without being able to say it. Something inside me said, 'You know what it is all the time." I partly knew and partly didn't.

These subjects all say essentially the same thing—not that they could not remember, but that they could not make the effort or sustain the activity

of remembering. The striving to remember is inhibited by the antagonistic striving to act as if the trance were forgotten, and the subject secretly sides with the latter tendency which he rightly understands as corresponding to the hypnotist's real desire.

It will be seen from the foregoing remarks that the argument of this section runs as follows: the subject is ruled by a wish to behave like a hypnotized person; his regnant motive is submission to the operator's demands; he fully understands at all times, in a well-conducted experiment, what the operator intends; and his behavior is a striving to put these intentions into execution. Let us briefly examine one more experiment the implications of which are radically changed by this hypothesis.

Wells (28) argues that a hypnotized subject of good moral character can be forced by suggestion to commit a real crime. Not wishing to lie to his subject, Wells after putting him into hypnosis described explicitly each step of the experiment. He was told that upon waking he would take a dollar from the experimenter's coat which he would wrongly perceive as his own; he would then forget this episode, but on finding the dollar in his pocket would wrongly recall that it belonged to him and would spend it; finally, he would forget that he had ever been hypnotized. This experiment was completely successful: for several days the subject argued vehemently with accusing friends that he had never been hypnotized and never stolen a dollar. What conclusions can be drawn?

At the beginning the subject understood the whole procedure exactly as the reader understands it; he must have been perfectly aware that taking the dollar was part of the operator's intention. Wells assumes that somewhere along the way the subject's understanding becomes divided, that he loses the initial connection among his ideas, that the taking of the dollar becomes separated from the larger purpose of the experiment and therefore can be viewed in the light of a criminal action. The thing which makes this assumption possible is the concept of dissociation, the idea that by suggesting an amnesia it is possible literally to divide the mind into insulated parts and to hold communication with them separately. If instead we apply the concept of the present paper, it appears that the subject strove to behave like a hypnotized person as Wells defined it to him, that he acted as if he were dissociated because this was part of the definition, and that no proof has here been furnished that a subject could be forced to commit a crime if he had reason to suppose that it really was a crime.

Whatever the merits of this question, it cannot be decided until hypnotism becomes, as was remarked before, a sophisticated chapter in social psychology, with attentive consideration for the interplay of motives and intentions between subject and hypnotist. The subject knows what is going on, infers the intentions and hopes of the operator, and he does his best to oblige. Even when we urge him beforehand to resist us, or afterwards coax him

to remember what we have ordered him to forget, he decides as best he can what we really want and he strives to give it to us.

The hypothesis of goal-directed striving, however, does not and cannot alone explain the phenomena of hypnotism as these were outlined in a previous section. It cannot tell us how the hypnotized person transcends the normal realm of volition, how his experience of intention is altered, or how the procedure for inducing hypnosis leads to such important changes. So far we have argued only that hypnotic behavior looks like a goal-directed striving; we must now consider how this striving achieves its unexpected degree of success.

Hypnosis as an Altered State of the Person

In a recent review of experimental hypnotism P. C. Young (35) calls attention to sharp differences of opinion as to the nature of the hypnotic state. In one camp he places those who adhere to a conational hypothesis similar to the one advanced in the previous section. On the other side he puts those who contend that the profound organic changes which result from hypnotic suggestion argue for an important alteration in the behavior mechanism. The factors involved, Young believes, can be diagnosed better "from experiments on simple sensory experience than from those on the more spectacular, but more complicated, autonomic processes." Reviewing a number of contradictory reports, he finds that "the weight of testimony seems to point to an actual change in the content of sensed stimulations as the result of hypnotic suggestion, rather than merely to a changed attitude towards the stimulations sensed." Much evidence has been accumulated showing that the hypnotized person can execute suggestions which in a normal waking state would lie well outside the realm of his volitional control. These findings offer a formidable obstacle to theories which depend wholly on conation. "After all," Young continues, "these explanations amount to saying that the subject is playing a game with the experimenter and with himself. They would put the inhibition or dissociation (if dissociation is admitted) at very high integrative level." In view of the kind of changes which can be produced, it seems to him unlikely that the explanation belongs at this level.

All theories which involve an interaction of factors are destined to pass through a long adolescence of storm and stress. The human mind seems to abhor complexity, preferring to nail its colors to the mast and go down fighting for some simple and sovereign explanation. Arguments over body and mind, heredity and enviroment, biology and culture, appeal to something in human nature which is not the shrewd and dispassionate search for truth. The theory of hypnotism will never prosper until, outgrowing the dialectic dichotomy of "striving" and "state," it considers the possibility

of interaction. There is no law of nature which declares that hypnosis may not be at one and the same time a goal-directed striving and an altered state of the organism. On the contrary, it is upon this view of the matter that we should insist, because only in this way is it possible to reconcile the otherwise conflicting data. The hypothesis of goal-directed striving, moreover, gives us a new and valuable perspective in which to study the hypnotic state. It is to be regarded as a state in which certain kinds of striving, normally associated with volition, take place without the usual volitional experiences and achieve effects outside the usual realm of volition. Its chief peculiarity is its effect on goal-directed striving.

Ever since the concept of magnetic force fell into disrepute, it has been assumed that hypnotic technique created an altered state of the person. At one time or another a long list of distinguishing characteristics has been assigned this state, but here modern research has taken a heavy toll. Reviewing the literature in 1926, Young (34) dismissed catalepsy, post-hypnotic amnesia, and exclusive rapport of subject with operator, showing that all of these are the result of suggestion and do not necessarily appear if appropriate suggestions are not made. To the discard pile Hull (11) in 1933 added the lowering of sensory thresholds, pointing out that, while subjects believe themselves to possess whatever heightened sensitivities have been suggested to them, actual measurement fails to reveal a significant departure from normal levels. Even more important than these findings is the demonstration, through a convincing series of experiments, that hypnosis is not a form of sleep. Older writers, bent upon reassuring timid clients, made much of the outward likeness between sleep and hypnosis, and suggestions of drowsiness appear in the great majority of techniques for inducing the latter state. In reality, however, there is little resemblance between the two. In a very neat experiment Bass (1) has shown that the knee jerk and the voluntary pressing of a key in response to a bell, actions which disappear quite early in true sleep, remain unchanged throughout a deep hypnotic trance. Other investigators have measured pulse and respiration rates, brain potentials, and electrical resistance of the skin in hypnotized persons, finding that none of these measurements shows the changes characteristic of sleep (3; 13; 14). Physiologically the hypnotized subject is awake, not asleep, a fact which appears less remarkable when one recalls the feats of problem-solving and calculation which have been known to take place in hypnosis.

The trend of research has thus been to denude the hypnotic state of its once extensive vesture of distinguishing characteristics. What remains of its former majesty? "The answer is simple," writes Hull (11): "the only thing which seems to characterize hypnosis as such and which gives any justification for the practice of calling it a 'state' is its generalized hypersuggestibility. The difference between the hypnotic state and the

normal is, therefore, a quantitative rather than a qualitative one." Responsiveness to suggestions emanating from other people, to "prestige suggestion," is a very common phenomenon, but this is not the distinguishing mark; "the essence of hypnosis lies in the fact of *change* in suggestibility . . . in the experimental fact of a *shift* in the upward direction which may result from the hypnotic procedure." "Hypnotic hypersuggestibility has a relative and not an absolute significance."

In these statements hypnosis is reduced to its barest possible meaning: a state of relative hypersuggestibility brought about by certain artificial techniques. Simple as it sounds, this definition easily covers the essential phenomena: insensitivity to pain, increased muscular capacity, amnesia and hypermnesia, non-intentional performance of actions usually requiring volition, all these are instances of hypersuggestibility. But it would be unduly hopeful to suppose that the elevation of this particular unifying concept would much simplify the task before a theory of hypnotism. The concept of suggestion may be admired for its versatility but not for its defining power. If by calling hypnosis suggestion we brought to our aid a number of well-formulated facts concerning non-hypnotic phenomena, our thinking would be considerably straightened and broadened. Unfortunately such is not the case, and the theory of hypnotism is left to face its task much as before.

There are two ways in which the nature of the hypnotic state may be profitably investigated. The first way is to study its characteristics directly, asking ourselves how it differs from the normal, comparing the range and quality of hypnotic behavior with that of a person trying to execute voluntarily the same acts. The other way is to consider how hypnosis is brought about and how it is terminated, to examine the significance of the procedure and to deduce therefrom the nature of the state produced. Inasmuch as both speculation and experimentation have been more active along the first than along the second line, it is appropriate to emphasize the benefits which might accrue from a more searching scrutiny of the hypnotic procedure. We shall first, however, look briefly at the better-tilled field, undertaking not to review it but merely to point out, in the spirit of a preface, the problems involved and the apparent trend of the findings.

The most impressive phenomena of hypnosis are those in which there is a transcendence of voluntary capacity. The high attracting power of these phenomena has drawn attention away from the true nature of the problems and led to fantastic speculations about the release of hidden powers. Little has been said about the limitations of hypnotic behavior, the things which are done less well in hypnosis than in the normal state. The hypnotized person lacks alertness and humor; he is literal and serious in his execution of the operator's wishes, seems to have lost all sense of the ludicrous, pursues one goal with disproportionate intensity, and pays

little attention to matters and impressions which lie outside this purpose. He seems to have a contracted frame of reference, and above all he lacks initiative, lying perfectly quiet and even dropping off to sleep if the operator stops proposing lines of action. It may well be that suitable tests of performance demanding alertness, decisions, and quick complex judgments would outline a sphere of achievement in which hypnotized persons made reliably poorer scores. The hypnotic state is not a super-state; it is simply an altered state.

Perhaps the best way to conceive of this problem is to use a topographical analogy. Suppose we draw two regions, one including the behavior which can be produced, the functions which can be controlled, in the hypnotic state, the other enclosing the capacities of the normal state. These two regions, of course, will overlap, but not completely coincide; at either edge of the diagram will be a zone which belongs to only one region. To this statement we may add the conception that in light hypnosis the overlap with the normal region is at its greatest, growing progressively less as the subject passes toward profound somnambulism. It may now be stated that the task of research is to establish the detailed geography of these regions, to find out on the one hand exactly what capacities can be transcended, on the other what powers are distinctly reduced, and in both cases the measurable extent of these changes.

Research into these matters has not been idle; at least one important general statement can be drawn from the accumulated results. It appears to be approximately true that the boundary of functions which can be more effectively controlled under hypnosis lies parallel to the boundary for normal volition. Certain functions which lie wholly outside the realm of volitional influences are also inaccessible to hypnotic suggestion, but others which may be regarded as semivoluntary can be surprisingly transcended in the hypnotic state. Let us take as an example Sears' (25) investigation of hypnotic anaesthesia. Here the attempt was made to abolish various normal reactions to a painful jab on the calf of the leg by suggesting that the leg was anaesthetic. Verbal report, facial flinch, and changes in respiration, all of which are at least partly voluntary, were almost completely eliminated, but the characteristic rise in pulse rate was reduced only 77 per cent, variability of pulse 50 per cent, and the galvanic skin reaction no more than 22 per cent. These achievements of hypnotic suggestion, of course, greatly exceed the capacities of the normal state; in a control experiment Sears was able to show that "voluntary inhibition of reaction to pain does not present a picture even remotely resembling the reaction under true hypnotic anaesthesia." But it will be noticed that the further one gets from a volitional function the smaller is the effect of hypnotic suggestion. A similar trend can be observed in experiments on the extent of post-hypnotic amnesia. Hull, under whose direction the experiments were performed, summarizes the results as follows:

> [The subjects] uniformly deny any recollection of trance events, *i.e.*, as tested by general symbolic recall, amnesia is 100 per cent. By detailed specific recall this amount of amnesia is reduced for nonsense material probably to about 97 per cent. By the relearning method amnesia falls to approximately 50 per cent. Manual habits learned in the stylus maze show by the relearning method an amnesia also of about 50 per cent. With specific training in arithmetical addition and general training in memorizing nonsense material the amount of post-hypnotic amnesia is reduced to zero (11, *155*).

Thus as one passes from specific learned content to the more remote results of practice, the effectiveness of hypnotic suggestion declines. To this conclusion we may add one more observation, that of Lundholm (15), who showed that with suggested blindness a flashing light elicited the usual pupillary reflex but no eye-movements, whereas with suggested hallucination of a flashing light there were eye-movements but no pupillary reflex. The trend of all these observations is clear. Hypnotic behavior can in many respects transcend the limits of volitional control, but it remains somehow related to those limits; its own limits seem always to lie at a not-too-great distance beyond those of volition.

We have seen in this section that hypnosis must be conceived as an altered state of the person the chief peculiarity of which is a change in the success achieved by certain kinds of striving. If in some respects the hypnotized person is inferior to his best normal self, in others he distinctly transcends the usual boundaries of volitional control. But this transcendence appears less remarkable, and perhaps ultimately less bewildering, when we notice that it consists of a roughly measurable pushing out of those boundaries in certain directions rather than a capricious disregard for their existence. The hypnotic alteration of the person is neither unintelligible nor immeasurable.

Significance of the Procedure for Inducing Hypnosis

It is difficult to think about hypnosis without thinking about the procedure by which it is induced and terminated. A close inspection of these procedures might well be expected to reveal the nature of the hypnotic state. That it has not already done so is doubtless due to the extraordinary variety of methods for which success is claimed, the wide range of techniques to which one or another operator pins his faith. The first task is to factor out the features which are common to all these methods. There appear to be at least two features which are almost if not quite universal, which certainly assist the process of inducing hypnosis even if they are not completely indispensable: these are (1) relaxation and the reduction of sensory input, and (2) the presence of an operator who administers the suggestions.

So obvious are these conditions that they often escape the searching examination they deserve.

We may pause for a moment to defend the assertion that these factors are well-nigh universal in hypnotic techniques. As regards the first, it is true that people can be hypnotized in a standing position and without closing the eyes. Hull, in fact, considers such a method under certain circumstances "perhaps the most effective of any," but this effectiveness depends on the following instructions:

> I direct him to look steadily into my eyes, and to think of nothing but sleep, to relax his muscles all over, even so much that his knees bend a little and his legs scarcely hold him up (11, 32).

Relaxation is thus included, even with the upright posture, and reduction of sensory input is achieved by steady optical fixation. Wells (27) uses a technique designated "waking hypnosis," the success of which must be apparent to all who have witnessed it, but even here, although suggestions of drowsiness and sleep are scrupulously avoided, the subjects are instructed to close their eyes and to attend carefully to the operator. It can be safely stated that nine out of ten hypnotic techniques call for reclining posture, muscular relaxation, and optical fixation followed by eye closure. The presence of an operator who administers the suggestions is similarly well-nigh universal. The possibility of auto-hypnosis cannot be denied, but there are very few procedures for self-hypnosis which do not start with training by an operator. It is apparently much easier to talk yourself into getting better and better if someone else has first suggested it to you.

Let us now briefly rehearse a standard hypnotic technique to see exactly what takes place. In the first place, the operator must make the subject willing to participate in the event; he must make sure of the favorable motives without which hypnosis cannot take place, for he is certain to fail "if a pattern of needs is aroused which dispose the subject unfavorably toward hypnosis" (31). Having elicited a willingness to be hypnotized, he asks the subject to lie down and relax his muscles, perhaps darkens the room, fatigues and then excludes vision, and lowers his voice to a quiet monotone. Vision thus becomes inoperative, kinaesthesis is much reduced by immobility, and audition is more or less focussed on a single stream of impressions. The operator meanwhile talks about drowsiness and sleep; but it is doubtful whether these remarks function as true suggestions, since the steps already taken are exactly those which anyone might use to permit drowsiness and sleep to overtake him in their own natural way. The onset of a little real drowsiness would appear to be an indispensable condition for producing hypnosis for the first time, although trained subjects can pass into the state without these leisurely preliminaries.

At this point the operator introduces his first unmistakable suggestion, such as that the eyelids are stuck down and cannot be opened. If on

trial this proves to be the case, the subject is regarded as being in the hypnotic state. It should be observed, however, that there are not two but rather four possible outcomes of this first real suggestion. The first is that the subject will open his eyes when challenged to try, in which case it will be admitted that hypnotism has failed. Another outcome is that the subject will make the attempt, perhaps in a rather vigorous manner with visible movements of the surrounding musculature, but fail to open his eyes. A third possibility is that the subject will make no apparent effort to open the eyes; he will have to be urged repeatedly to try, and in the end make perhaps some slight flicker in the surrounding muscles as a token to satisfy the operator. These two outcomes correspond to what the author has called elsewhere (29) the active or alert and the passive type of hypnotic trance. The subject in the passive state may be regarded as essentially too drowsy to move, drowsiness has progressed far enough so that he is distinctly disinclined to be disturbed. The fourth outcome is a total failure to respond; the subject acts as if he had heard nothing, and awakens with a start when gently shaken. He has been really asleep, hence not in any kind of hypnotic state, and his amnesia will be complete.

It is implied in this description that there is a continuum from the wide-awake state through drowsiness to sound sleep. The hypnotist, in order to succeed, must bring his subject a short distance along this continuum to a light drowsiness, but must stop him there and prevent him from getting more sleepy, otherwise he will go into the passive trance or drop off to sleep altogether. We know from many studies that the hypnotized person is not asleep, that his bodily state is not that of real sleep. Nevertheless, it appears that a dash of drowsiness, so to speak, is essential in producing the hypnotic state, and in no other way can we explain the reported good effects of sedative drugs when other methods of hypnotizing have failed (24).

We are now in a position to understand the importance of the hypnotist and to explain why he is all but indispensable in bringing on the hypnotic state. Apart from the instruction he gives and the motivational state he brings about- both of which might be essentially present without him—he serves the very vital purpose of keeping the subject awake, allowing him to relax and give himself up to drowsiness but at the same time "pegging" this drowsiness in a light stage and preventing a lapse into real sleep. A person may learn through practice to catch himself at this state and thus become adept at self-hypnosis, but a beginner almost invariably needs assistance if he is to arrive and remain at that curious point halfway between sleepiness and alertness. The first function of the hypnotist, then, is to keep the subject from sliding around on the sleep continuum.

This he does in the course of executing his second function, which is to keep up a moderate degree of auditory input while the other senses remain relatively closed. Subjects rightly complain that they do their best

to go to sleep but are prevented from doing so by the operator's stream of talk. We must remember at this point that it is not a matter of indifference what the operator says: the urgent character of his words, their power to keep the subject attentive in spite of his drowsiness, lies not in their volume, not even in their relative volume, but in the fact that they consist of requests, commands, and suggestions which in turn convey the wishes and intentions of the hypnotist. By the measures which he takes to exclude distraction, and especially by his words, the operator tries to maintain a state of mono-motivation, a focal press of dominance, and the subject is given little alternative except to continue the deference which made him susceptible in the first place or else to display a resistive autonomy which under the circumstances could hardly be distinguished from aggression. In short, the operator's words, far from being lifeless syllables, are loaded with his hopes and wishes; they act on the subject with the force of another's hopes and wishes which through him may be either gratified or frustrated. We cannot understand hypnosis without bearing in mind the motivational field in which it takes place. The dual function of the operator is to prevent the deepening of drowsiness and to keep regnant the wish to behave like a hypnotized person.

The importance of relaxation and the restriction of sensory input probably lies in their relation to drowsiness. When we know more about drowsiness and can state more precisely the changes which go with it we shall be able to advance considerably our knowledge of the hypnotic state. Here we shall offer only one very general hypothesis: the peculiarities of hypnotic behavior discussed earlier, the involuntary feeling, the literal, humorless manner, the un-self-consciousness, inattentiveness, and poor subsequent memory, can all be plausibly related to the changes which take place in drowsiness. When a person is drowsy, his images and experiences tend to become more vivid, more concrete, and more absolute. Abstract processes and complex frames of reference seem to be highly vulnerable to fatigue. The operator avails himself of this vulnerability, reduces as far as possible the perceptual supports which might serve to sustain a wider frame of reference, bids the subject relax his mind as well as his body, and thus encourages drowsiness to take a small toll from the higher integrative processes.

It is significant that one of the commonest complaints of unsusceptible subjects is that they could not forget the situation as a whole, could not stop thinking how absurd it was to be lying there on the couch, what their friends would say afterwards, how unreasonable the suggestions sounded, how humiliated they would be to have their wills overcome. Such comments, in so far as they are not simply signs of unfavorable motivation, imply that the frame of reference has refused to contract, that in spite of external circumstances there remains an internal alertness

to "other considerations" which is the opposite of drowsiness and the enemy of successful hypnosis.

It would be profitable to follow up the idea that hypnosis involves some slight degree of functional decortication, of a kind, however, which is produced by relaxation and quieting rather than by drugs, operation, or strong emotion. All thinking along this line must be limited of course, by two facts, that the hypnotized person is in no true sense asleep and that he remains capable of fairly active mental operations. There would appear to be enduring value, nevertheless, in the hypothesis of lowered functioning, of activity a little removed from the alert, wide-awake, self-conscious level which we ordinarily consider the best of all possible mental states. Physiology has accustomed us to the idea that the highest centers are mainly inhibitory in function, so that their withdrawal tends to release the energy of more primitive processes. Psychopathology has accustomed us to the notion that unconscious strivings may possess a peculiarly direct communication with the autonomic system, as in the psychosomatic disorders, and even with certain functions of the cerebro-spinal system, as in conversion hysteria. It may well be that hypnotic behavior lies somewhere between the level of volition and the level of unconscious strivings, enjoying some of the privileges of the latter in the way of extended control. The two hypotheses here discussed, the creation of an unusually weighted motivational field and the production of a moderate degree of disinhibition, while they by no means exhaust the problems of hypnotism, point the direction in which the scientific caravan should move.

In an earlier section it was proposed that the manner of terminating hypnosis required rather drastic reconsideration. The command to awaken must be regarded as itself a post-hypnotic suggestion which constrains the subject, still docile to the operator's wishes, to start acting as if he were awake. We need not assume that he issues from the hypnotic state in the fraction of a second required for the operator's signal. But the new suggestion which the hypnotist has unwittingly given involves certain conditions which of themselves gradually wipe out the hypnotic state, the more rapidly, no doubt, when there are no further post-hypnotic suggestions waiting to be performed. Upright posture must be assumed, the eyes must be opened, conversation must be made, and the hypnotist relinquishes his position as sole speaker and focal press of dominance. This withdrawal of all the conditions deemed essential for producing hypnosis in the first place makes it impossible for the subject to keep his frame of reference contracted and to remain in the hypnotic state, even though, as is often the case, he would prefer to do so. Just as it is the hypnotic situation as a whole, rather than specific suggestion which puts the subject gradually into the hypnotic state, so it is the post-hypnotic situation as a whole, rather than the command to awaken, which gradually brings him out of it.

Summary

In the forward *march of psychological theory* hypnotism has fallen to the rear, unable to shed the conceptual baggage of a past age The present paper has attempted to lighten this load so that hypnotism will be encouraged to take its place as a chapter in social psychology and as a means of investigating the structure of personality

A theory of hypnotism is called upon to explain the following facts (1) that the hypnotized person can transcend the normal limits of volitional control, (2) that he behaves without the experience of will or intention, without the self-consciousness, and without the subsequent memory which under the circumstances one would expect, and (3) that these changes in his behavior occur merely because the hypnotist says so

As a first step it is proposed that hypnotic behavior be regarded as a meaningful, goal-directed striving, its most general goal being to behave like a hypnotized person as this is continuously defined by the operator and understood by the subject Such a view replaces the older notions of automatism and dissociation which have persisted in a peculiarly rigid and unenlightened form to the great detriment of hypnotic theory Reasons for preferring the hypothesis of goal-directed striving are found by a direct inspection of typical hypnotic phenomena The application of the hypothesis puts several of these phenomena in a quite new light particularly the post-hypnotic behavior which has played such a prominent part in experimental studies The subject, it is held is ruled by a wish to behave like a hypnotized person his regnant motive is submission to the operator's demands he understands at all times what the operator intends, and his behavior is a striving to put these intentions into execution In order to explain the peculiar character and surprising success of the hypnotic striving, however, it is necessary to conceive of hypnosis as an altered state of the person

The hypnotic state can be profitably investigated in two ways (1) directly, by comparing the range and quality of hypnotic behavior with that of a person trying to perform voluntarily the same acts and (2) indirectly by considering how it is brought about and terminated The first problem has been the topic of considerable investigation in which it is possible to discern a definite and important trend hypnotic transcendence of the usual boundaries of volitional control consists of a roughly measurable pushing out of those boundaries in certain directions rather than a capricious disregard for their existence As one passes from semi-voluntary functions such as respiration and eye-movements to completely involuntary acts like pulse, pupillary reflex, and galvanic skin response, the effects of hypnotic suggestion grow smaller.

The procedure for inducing hypnosis has received little attention as a

means of studying the nature of the hypnotic state The two factors which appear to be common to all techniques are (1) relaxation and a reduction of sensory input, and (2) the presence of an operator who administers the suggestions The operator is indispensable because he prevents the subject from passing from light drowsiness into real sleep and because he maintains a continuous motivational pressure a local press of dominance Relaxation and the restriction of sensory input are conducive to drowsiness, and this in turn may be conceived as a slight lowering of functional level the effect of which is disinhibitory so that in certain ways the range of actions accessible to the hypnotic striving is increased It is at all events along such lines, keeping step with advances in psychopathology, physiology, and motivation, that the theory of hypnotism should press forward

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The Process of Hypnotism and the Nature of the Hypnotic State

Lawrence S. Kubie and Sydney Margolin

I. Introduction

Science has gradually come to accept the fact of hypnotism; but adequate explanations of it are wanting still. In part this is due to a failure to recognize that there are two quite different aspects of the phenomenon to describe and to understand, namely, the hypnotic process and the hypnotic state. These differ on both psychological and physiological levels. The interrelationships between the subject, the hypnotist, and the external world are not the same during the process of induction and the state of hypnosis itself. Nor is the essential neurophysiology of the two phases identical. These differences will be considered in this communication.

Probably no definition of hypnotism will satisfy all workers in the field, especially since it is not easy always to recognize the state itself with certainty, nor to rule out conscious and unconscious simulation. It is necessary, therefore, to approximate the clarity of a definition by accurate description, by analogies where necessary, by an analysis of methods and by measurements wherever possible. This is accepted scientific methodology even in more precise fields, and will yield at least a working definition, an hypothesis to be proved.

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II. The Process of Induction

The subject who has been hypnotized many times inevitably develops certain automatic or conditioned reflexes, by which a short-cut is established to the hypnotic state. In such an individual the process of induction has lost the very features which are its essence in an untrained subject. The phenomena can best be studied, therefore, in the slow-motion picture of the hypnotic process as it takes place in a novice. It is characteristic of the onset of the hypnotic state that the subject appears to lapse into "sleep" while maintaining at least one sensori-motor contact with the outside world, and further that by the gradual elimination of other sensori-motor relationships the hypnotist becomes for a time the sole representative of or bridge to the outer world. The paradigma of this condition is the infant who is crooned to sleep in his mother's arms, and who sleeps soundly as long as the rocking and crooning persist but who wakens the moment they cease; or the individual who sleeps in a railroad train and wakens each time the train stops. In both instances, *in some way* responsiveness is reduced to every sensory inflow except one. The subject "sleeps" with one sensori-motor channel open, with one ear on the noises of the train or on his mother's voice; or as the saying goes, "with one eye on the clock." He becomes a telephone switchboard with only one plug in, or a castle surrounded by a moat with every drawbridge up but one. (*Cf.* Bierman (1).) The psychophysical mechanism of this process will be described later.

Ontogenetically the hypnotic process can be viewed as a phenomenon of regression in that it approaches the sensori-motor state of an infant in the first weeks of life. Naturally, in the hypnotic process this regression cannot divest itself completely of all that has been acquired subsequently; but the expression of all later experiences is channeled through this earlier mechanism.

According to this description, the onset of the hypnotic state can be defined as a condition of partial sleep, in which one or two open channels of sensori-motor communication are maintained between the subject and the outside world. A consideration of the full implications of this fact makes it possible to explain the transition to the fully developed hypnotic state. Awareness of self as distinct from the world which impinges from without depends in its ultimate analysis upon multiple avenues of communication. The fewer are the open channels and the more completely is the subject restricted to one avenue of impression, the less clearly differentiated will be the boundaries between his "Ego" and the external world. Thus at the outset a state is created in which each successive sensory stimulus from the hypnotist operates less and less as though it reaches the subject from the outside world: instead, the incoming stimuli become indistinguishable from the self, seemingly as endogenous as the subject's own thoughts and feelings. Once the subject is going "under," it is only in a purely

geographical sense that the voice of the hypnotist is an influence from the outside. Subjectively it is experienced rather as an extension of the subject's own psychic process. The hypnotist's words are the nucleus of thoughts that the subject is thinking; the hypnotist's commands become his own spontaneous purposes, even to the point of acquiring the ambivalence of neurotic conflicts This dissolution of Ego boundaries creates a psychological state which is analogous to that brief period in early infancy in which the mother's breast in the mouth of the infant is psychologically a part of that infant far more than his own toes and hands, as much a part of the infant's Ego as is his own mouth. It is this dissolution of Ego boundaries that gives the hypnotist his apparent "power"; because his "commands" do not operate as something reaching the subject from the outside, demanding submissiveness To the subject they are his own thoughts and goals, a part of himself [1]

To be strictly accurate, these statements must be qualified somewhat. No single sensory modality is essential to the maintenance of Ego boundaries. In blindness and deafness, for instance, the two dominant distance receptors may be lost or may be congenitally absent without preventing the development or maintenance of a differentiated Ego Under all such conditions, however, multiple skin and enteroceptive impulses are active: and the Ego which develops in spite of the lack of one or more sensory tools or which persists in spite of their loss, is an altered Ego Familiar examples of this are the paranoia of the deaf and the submissiveness of the blind. A subtler manifestation is the difference between visual and auditory types.

Furthermore, in the induction of hypnosis, as in normal living, it is impossible for afferent impulses from any single sensory modality to remain isolated The traffic which enters over the single open drawbridge quickly scatters to all of the other closed gates on its way to the center of the castle This makes it appear to the watcher in the middle as if the internal traffic came from many directions and as though it had entered over all of the drawbridges Thus by integration with pre-existing central pathways of association the new impressions become part of a unified experience in which the past and the immediate present are fused. In this way it comes about that in the induction of the hypnotic state the Ego boundaries are blurred both as to the outer world and as to that between Ego Past and Ego Present. The disturbance in the so-called "time sense" which occurs under hypnotism, in dreams and in amnesic states, thus becomes

[1] *Ego* is used here not in its popular meaning, but in the psychoanalytic sense to indicate that aspect of the personality of which the individual is partly conscious and partly unconscious, and which embraces the coordinated activities of the psychophysiological apparatus by means of which the individual relates himself to external realities

The term Ego boundaries, originally introduced by Federn, refers to the boundary between an inner and outer world which evolves slowly in the life of each individual, which constantly changes, and which like the Ego itself is partly conscious and partly unconscious.

understandable; and light is shed on Freud's repeated statement that unconscious processes know nothing of time As with the boundary between the Ego and the outer world, the realization of time and its passing depends upon multiple modalities and intensities of sensori-motor activity

Many years ago the French philosopher, Etienne Bonnot de Condillac (1715 1780), recognized this erasure of the boundaries of the Ego which would occur in an individual with only one active sensory modality In his treatise on sensation (Paris and London, 1754 (7)), he created a fantasy of a "statue" of a man who possessed one sense alone—the sense of smell He described how such an individual would be incapable of recognizing objects as things which had being outside of himself, and how each smell sensation would seem to him to be himself The statue would *be* each new odor that reached it, unable to distinguish between a source within itself and a source outside of itself Within the limits to which the "statue" could remember[2] such experiences Condillac noted that there would be variations in the relation of activity and passivity towards experience, the statue being relatively passive towards a current experience and relatively active towards the recollection of the same odor out of the past

Evidence for this point of view is seen in many well known psychological facts For instance, in daily life the degree of organization of sensory data constantly delimits the boundary between imagery and hallucination which is another aspect of Ego functions In dreams we accept as normal the occurrence of visual and auditory images of hallucinatory vividness but it is in sleep alone that it is 'normal' to have such hallucinations to wit, only when the corrective and comparative data from distance receptors are not active In contrast during waking states even the most normal individuals can have varying degrees of hypochondriacal illusions or hallucinations, because proprioceptive sensations from the body lack the clear definition of those which are mediated by the exteroceptor apparatus, and therefore are less able to correct the pseudo-sensory creations of the imagination

Thus the restriction of sensori-motor relationships which is the nuclear phenomenon of the induction phase of the hypnotic process explains both the apparent suggestibility of automatic passivity, and the intensity of the sensory components of the images and memories which subsequently may flow through the mind during moments of hypnagogic reverie In this state, as in dreams, emotional and sensory images out of the past are revivified with undiluted intensity because of the lessened opportunity to make comparisons with actual concurrent sensations[3] Furthermore, whereas in

[2] This comment on the relative degrees of activity and passivity in remembering and experiencing respectively is of considerable interest to analysts

[3] An incompletely defined or integrated experience creates a kind of vacuum which can be resolved by additional perceptual values either by unconscious synthesis or conscious exploration

dream states the sensory data are almost exclusively those of the projective distance receptors (*i.e.* visual and auditory), in hypnagogic reveries, olfactory, gustatory, tactile and kinaesthetic memories can likewise escape all customary repressive influences and therefore are experienced with exceptional vividness (*Cf.* Silberer (22), Moore (19).) This seems to open a pathway to many otherwise inaccessible memories (Kubie and Margolin (16).)

Such an obscuring of Ego boundaries so dramatic in its manifestations when it is total is frequently encountered in normal psychology as a partial phenomenon the manifestations of which are subtle and elusive. In this form it is of universal importance in the developmental processes of childhood, in normal dreams and reveries, and in the ceaseless influence of unrecognized automatic patterns in normal life.

In other respects as well the induction of hypnosis seems to be an exaggeration of but not a departure from normal behavior, and is dependent upon no abnormal mechanisms. Indeed it can be looked upon psychophysiologically as nothing more than a function of maximal attention, although reached rarely and only under special conditions, a phenomenon which could be predicted by extrapolation from the observation of better known everyday occurrences. Its mechanism has been described by Pavlov as the formation of a concentrated excitatory focus in the central nervous system with surrounding areas of non-excitatory processes—or, as Pavlov would call it, of inhibition. (Kubie (15).)

II Physiological Factors in the Induction of the Hypnotic State

The basic physiological prerequisite for the induction of the hypnotic state is the creation of a focus of central excitation with surrounding areas of inhibition (or non-excitation). In turn this depends upon two related factors: (1) relative immobilization and (2) a monotonous stimulus of low intensity either continuous or rhythmical. Although physiological fatigue-products may play a role in altering various significant thresholds, too little is known of their influence to warrant discussion of them at this time.

1. *The Factor of Immobility*

The fixing of the subject's eye on a single point, which traditionally has played such an important rôle in the melodramatics of hypnotism, has a valid physiological basis. Pavlov showed that the "exploratory" or "investigatory" impulses of animals are basic in maintaining a state of general alertness and that any interference with them is the first step

towards the induction of the hypnotic immobilization which is described by all who work with animals, both in animal husbandry and in the experimental laboratory Whether it is the immobilization of sheep for shearing, of the hen by holding its beak to a chalk line, or of a dog or a pig in a Pavlov frame, all have this factor in common (*Cf* Byrne (5))

In the human subject the eye has replaced the nose and head as the exploratory and investigatory organ, and the prolonged, voluntary fixation of the eye on a single point is physiologically homologous to the immobilization of the whole head in lower forms When at the request of the hypnotist the human subject fixes his eye on one spot, he figuratively speaking takes himself by the back of the neck and immobilizes himself Thereby he produces a state of relative inhibition (or at least a reduction of excitation) not in the segmental oculo-motor apparatus alone but also in the supra-segmental levels which play upon it and therefore in the entire sensori-motor apparatus which adjusts the human body to the roving and exploring activities of the eye

At the same time fixing the eye on a single spot reduces the visual input to a low, continuous monotone The eye sees only one spot just as the ear hears only a droning voice or sound This simultaneous restriction both on the motor and sensory side reduces to a minimum the variegated sensory contrasts upon which Ego boundaries depend

2 *The Factor of Monotony*

Both the conscious perception of sensation and all conditional and unconditional responses to afferent stimuli are dependent upon changes in the stimuli themselves Monotony' is not merely a psychological concept with emotional connotations It is at core a physiological fact in which the phenomenon known as 'sensory adaptation' plays the initiating rôle Sensory adaptation is created in any receptor organ by a stimulus of constant intensity which continues without interruption beyond a certain time or by a stimulus of constant intensity which is discontinuous but which has a constant rhythm Physiologically sensory adaptation is a state of equilibrium in the sense organs which can be altered only by changes in stimulus intensity or in the metabolism of the organ itself Both in amplitude and in rate these changes must exceed certain minimal limits which can be quantitatively determined Psychologically, sensory adaptation is manifested by a diminution both in the subjective awareness of the stimulus and in the responses and reflexes which are normally associated with a similar stimulus of perceptibly fluctuating intensity

The phenomenon of sensory adaptation has been demonstrated in man and in other species for practically all sensory modalities *e g*, vision (Hecht (10)), hearing (Knudsen (14)), smell (Zwaardermaker (23)), touch (Weber-Fechner (*cf* Dallenbach (8)) Everyday experience makes us aware

of this in the adaptation to odors, to posture, to the pressure of clothes, etc. The same phenomenon is also observed in organs which are under autonomic control, such as the bladder, rectum and stomach In daily life this is familiar through the fact that heartbeats and respirations are perceived only when their rhythms change, and acutely only when a dysrhythmia occurs

These considerations permit the conclusion that sensory adaptation is one of the physiological prerequisites to all sleeplike or hypnoidal states. In other words, the sensory receptors must be exposed either to continuous stimuli of constant intensity or to discontinuous stimuli in a rhythmic pattern

Rhythm is thus seen to be a significant physiological factor in the induction of sensory adaptation, in addition to its psychological importance in emotional states and in the general field of aesthetics It can be said that a steady rhythm endows a stimulus with a quality of predictability, which in turn creates an unconscious attitude of relaxed and secure expectancy Especially where, for any reason, distance receptors cannot warn us of things to come rhythm plays a relaxing rôle of heightened significance. This is seen in the process of falling asleep It should be worthy of special study in those who are deaf and blind The impact of an expected stimulus is not as disturbing as the impact of the same stimulus when it is unexpected. We can strike ourselves rhythmically and experience no pain, whereas if someone else strikes us unexpectedly even with less force, the sensation of pain can be acute and the attendant emotional overflow severe Jacobson (12) and Miller (18), in testing the reactions to electrical shocks during various stages of relaxation, found a diminution in the subjective awareness of pain proportional to the degree of relaxation Partly through the sense of predictability which derives from it, rhythm gives rise to a feeling of security against the unexpected, creating a barrier against the startle pattern It influences centrally the physiological threshold at which sensory adaptation can be broken through These facts have been demonstrated in much of the experimental work on the influence and recognition of rhythm The rhythmically recurring words and gestures of the hypnotist play a similar rôle and act both peripherally and centrally

This makes it clear why it is difficult for one hypnotist to step into the rôle of another in the midst of a seance, since changes in voice, in intonation, in rate, accent an enunciation, will usually tend to disrupt the constancy and rhythm of the stimulus thus rousing to a sudden alert the sleeping sentinels of the sensory system

Universal sleep customs also demonstrate that both of these components of monotony (that is, rhythm and the induction of sensory adaptation), are important precursors to sleep Light adaptation occurs through the use of a dark room, through closing the eyes, or through the presence of low, steady illumination. Rhythmically flickering or flashing lights also

produce light adaptation and will not disturb or prevent sleep, whereas irregular light flashes can make it impossible Adaptation to sound is produced by sleeping in a hushed room, by the nightly diminution of the daily roar of noise, or by sleeping in a room in which whatever noises may occur are likely to be accustomed and expected Adaptation of the receptors for deep sensibility and for tonic and postural stimuli, is achieved by lying down so that support is provided for all parts of the body as the bed molds itself to the body's shape and weight Finally, adaptation of epicritic and temperature sensation is achieved by wearing night-clothes, bed coverings, and the like [1]

Conversely, the physiological nucleus of a state of alertness or wakefulness is found in a lack of adaptation of the sensory modalities, which allows the organism to orient itself to its environment with as much of its perceptual mechanism as can be brought into play Again in the mobilization of this state of "alert," one finds a subtle interplay of physiological and psychological forces The latter tend to be more or less specific for each individual, and depend upon the manifold associations which give life and meaning to the sensory impulses which penetrate through the peripheral barrier of sensory adaptation The noise of city traffic will disturb the sleep of the man from the country barnyard noises will waken the visitor from town For any individual therefore, specific complex sensory experiences can be divided into those which produce tension and thus increase the state of physiological and psychological alertness, and those which diminish tension and lessen this state

Furthermore, monotony exercises a cumulative and increasing influence on the activity of the organism It has been demonstrated that the longer a state of monotony is maintained, the greater is the minimal change in the peripheral stimulus which is required to disrupt the state of sensory adaptation Numerous observers have noted the hypnagogic effect of sus-

[1] "I would like to suggest that there is no great dissimilarity between so called sensory adaptation of the peripheral organ (which is if you will a negative adaptation or extension of the response of that organ due to the lack of variation of the stimulus) and the same thing within the central nervous system due to rhythmicity of stimulus From the functional organization of the nervous system there is every reason to believe that unvarying rhythmicity of stimulation necessarily involves the repeated action of the same portions of the nervous system and this at intervals sufficiently short to cause at least a rise in thresholds to stimulation from that source It is, by another means, exactly what we worked on so long with electrical stimulation of the cortex calling it 'extinction of response' Here the repeated stimulation of the same point resulted in a disappearance of the response I think you would be completely justified in regarding adaptation of the sense organ and adaptation of the central nervous system- the one to monotony, the other to rhythmicity -as two spacially separated but functionally like processes to be accounted for principally by the factors for extinction already known in the central nervous system" (Personal communication from Dr Warren S McCulloch)

tained monotony: *e.g.*, Sidis (21), Pavlov (20), Lovell and Morgan (17), Kleitman (13), Jacobson (12), Bolton (2), Cannon (6), Heubel (11). Sustained monotony produces a state of functional de-afferentation of the cortex comparable to that which was produced surgically in Brenner's (3) experimental demonstration that when high cervical section and section of the cranial nerves deprives the cerebrum of all afferent influences, the cortex yields electrical activity potentials identical with those obtained in sleep.

Finally, it should be clear that except where it is has been secondarily incorporated into a conditioned reflex, the hypnoidal state can never result from the physiological influence of the adaptation of one sensory modality alone. Discussions in the literature which emphasize the hypnagogic influence of one monotonous factor over another consistently neglect the fact that multiple modalities are always involved, and that the hypnagogic state varies with the successful adaptation of the various sensory mechanisms. Relaxation or immobilization is not a simple physiological situation characterized exclusively by lack of movement. A steady state for all sensory modalities is involved in its maintenance, and this must be mediated through reflex and acquired endogenous psychological factors.

> 'Some time after an accumulation of preliminary data had led to the formulation of the viewpoint expressed herein a monograph by Boris Sidis came under our consideration entitled 'An Experimental Study of Sleep' (1909) (21). This remarkable publication describes a series of experiments on the induction of sleep in frogs, guinea pigs, cats, dogs and children. Sidis characterizes the conditions necessary for the induction of sleep as the "conditions of monotony" and pointed out that limitation of voluntary activity, limitation of the field of consciousness and inhibition all help to a greater monotony (page 91). Up to this point Sidis' formulation and our own are strikingly similar.
>
> In keeping with the attitude towards instincts current at the time, Sidis regarded sleep as a "biological instinct as much as hunger and sex" (page 98) and analyzed the underlying physiological and psychophysiological processes into three component phenomena: (1) cell energy with sleep regarded as the anabolic phase of a metabolic cycle; (2) 'threshold' with sleep resulting when stimulus thresholds rise above the level of perception; (3) 'stimulus exhaustion' a state of unreactivity of a receptor or effector due to monotonous stimulation. The work of Sherrington and Weber provide the data for most of these concepts (pages 75-90).
>
> Interwoven with the discussion of the experiments on sleep runs a thread which if it had been developed fully might have proved to be of great significance. This was Sidis' application of 'immobilization' and "monotony" to psychotherapy. He induced the hypnoidal state by monotonous reading, singing or metronome beats. After a time he asked the subject "to tell what came into his mind during the reading or immediately after" (page 1). This is of special interest to us as any early parallel to the work recently reported (Kubie and Margolin (16)). Had Sidis correlated these observations with the early observations of Breuer and Freud and with the developing body of psychoanalytic theory and technique he could not have failed to exert a profound influence on the evolution of psychotherapeutic technique.

IV. Emotional Factors in the Induction of the Hypnotic State

Proprioceptive stimuli can be intrinsically pleasant or painful. On the other hand, exteroceptive stimuli acquire primary emotional significance either by warning of the imminence of pain (danger signals), or else by promising pleasure (pleasure signals) It is usually taken for granted that the response to exteroceptive signals depends upon a state of what is called "alertness"; but Pavlov has shown that alertness itself depends upon other factors: notably the tension of instinctual cravings, and the fate of previous similar signals in the life history of the animal Thus, if an animal is satiated, or if the "promise" is never fulfilled, or if pain finally cannot be overcome or avoided, the reaction may become reversed and the same signal will induce drowsiness It is in this manner that experience can so play upon and alter the conditioned emotional organization of any animal as to increase, decrease or reverse the hypnagogic value of any stimulus or of the manipulations of a would-be hypnotist

Therefore, attentiveness to exteroceptive stimuli comes to have a complex significance in all animal forms To withdraw attention from such stimuli implies either a state of satiation, or a retreat from painful tension, or else a sense of security that reaches to the deepest unconscious layers of the personality The latter state is the goal of the hypnotist

Wittingly or unwittingly, the melodramatic maneuvers of the old-fashioned hypnotist were designed not merely to immobilize the subject and to create monotony and sensory adaptation in general, but through the operation of these forces to *concentrate his attention on one field of sensation and to withdraw attention from all others*. To accomplish this, many tricks and devices had to be used in order to overcome the anxieties and resistances of the subject, to play upon his passivity or his aggressiveness by bribery, teasing, trickery and intimidation, and to side-step all automatic reactions of anger, fear, and depression Whatever the devices, the goal was always the creation of an emotional state in the subject in which it would become possible for him to abate the normal attitude of diffuse alertness and allow his sensory sentinels to doze. Only rarely can a subject do this if he is in a state of anger or anxiety, whether this be conscious or unconscious. Therefore, the hypnotist in the laboratory or on the stage has to adjust himself to his subject's feelings so as to circumvent these emotional obstacles. It is just here that the play of conscious and unconscious forces in the personality of the subject, and his consequent reaction to the manner, voice, appearance or maneuvers of the hypnotist exercise a fundamental contributory rôle.

This concept of the hypnotic process makes it possible to explain the consciously willing subject who nevertheless cannot "go under," and con-

versely the consciously resistant subject, who succumbs readily if the hypnotist exploits the deliberate opposition of the subject by allowing him to use the hypnotist as though the hypnotist were an instrument of the subject's will, thus evading the anxiety which is evoked by maneuvers which demand of the subject a greater show of passivity.

Irrespective of any special theory of how this is achieved, it is evident that the progressive diminution of the internal responses to sensory signals automatically reduces that share of internal tension which depends upon sensory inflow. But in order to become able to reduce his alert attentiveness to the warning signals which sensory stimuli provide, an individual must feel at least as secure as he ordinarily feels when he retires to bed. Thus it is not an accident that bed itself (and for many people it must be a familiar and accustomed bed) is an important conditioned stimulus for sleep. The hypnotist must somehow induce in the subject a freedom from disturbing affects, identical with the emotional relaxation which signals the approach to normal sleep.

That in any individual who has been hypnotized repeatedly the hypnotic state can be induced almost instantly by the mere presence of the hypnotist is not surprising, because the hypnotic reaction becomes a complex conditioned unit in the total Ego-*Gestalt*, an organized Ego-fragment into which the individual can be thrown in a flash, just as the patient with a specific phobia can be thrown into a panic by the appropriate danger signal.

V. The Nature of the Fully Developed Hypnotic State

As the process of inducing the hypnotic state achieves its goal, a remarkable and highly significant change occurs. The subject again becomes able to communicate freely with the outside world. He reestablishes the boundaries of his Ego both in time and place at least partially, and towards everything and everyone including the hypnotist. At the same time the hypnotist becomes partially engulfed within him ("incorporated"), almost as an amoeba flows around a food particle by re-expanding the pseudopodia which it has first withdrawn and then put out again. At this point, therefore, we must explore the significance of this change from the process to the state, and attempt to describe and explain it.

During the process of inducing hypnosis, a constellation of conscious and unconscious attitudes arises between the hypnotist and the subject, in which manifold libidinal displacements and substituted object relationships (*i.e.*, transference phenomena) are active. When the hypnotic state is fully achieved, an extensive carry-over occurs from this pre-hypnotic relationship into the content of the hypnotic state, comparable precisely to the carry-over into the content of any dream of the residues from

the emotionally incomplete experiences of the preceding day (the so-called "*Tagesrest*") This has recently been demonstrated experimentally by Farber and Fisher (9) in their studies of dreams under hypnosis As a consequence of this carry-over of transference values the hypnotist means many things at one and the same time to different levels of the subject's personality Of these many meanings, those which are most highly charged are expressed in the productions of the subject while under hypnosis It is this that gives rise to such over-simple terms as 'mother hypnosis,' 'father hypnosis," etc , which Ferenczi introduced (24)

Because he represents so many important figures and fantasies out of the subject's life, during the pre-hypnotic maneuvers the subject transfers to the hypnotist many highly charged feelings These feelings dominate the relationship during the process of induction but the specificity with which they are carried over into the hypnotic state itself, how far they may be altered or obliterated in the trance, or how active a role they play in the thoughts, words or conduct of the subject once he is "under," are problems which have not been adequately studied and theories of the importance of maternal and paternal types of hypnotic relationships still have an undetermined relation to the hypnotic state although they apply with some precision to the prehypnotic maneuvers of the hypnotist in his effort to initiate the hypnotic state

These terms are further misleading in that the carry-over from the prehypnotic transference relationships are not the essence of the hypnotic state itself any more than the '*Tagesrest*' is the essence of the dream In hypnosis, the residual stresses derived from recent experiences (here, this is the hypnotist) are subjected to the influence of the familiar mechanisms of condensation substitution etc as in the so called 'dream work," and in both states these mechanisms provide an avenue of access to earlier material However if the hypnotic state could be produced without the use of any personal pre-hypnotic maneuvers the hypnotic subject's thought content would then arise solely out of the depths of his own personality

In yet another respect the hypnotic state differs basically from the process of induction, in that once he is fully hypnotized the subject need not remain silent, inert and apart If appropriate words from the hypnotist engender corresponding purposes in the subject, he will walk around converse intelligently, and in general make it evident that his sensori-motor horizons have re-expanded, seemingly to their pre-hypnotic limits Furthermore, after the induction process is complete the hypnotist no longer functions as the only channel of communication between the subject and the outer world Instead, he becomes something which the subject carries around inside of him—a secret "will," or purpose- a "still, small voice of conscience"—an unconscious component of the new personality which has

emerged In this phase, the thread by which the subject remains tied to the hypnotist becomes hidden He is led by it, but he is not aware of it, and he scotomatizes all experiences which might force it upon his attention

Evidently, in the hypnotic process the subject recapitulates in a few moments or hours the most important and complex psychological evolution of infancy In this process parental figures are at first the only avenue of communication with the world and are therefore an integral part of the infant Ego because of the lack of clearly defined Ego boundaries Subsequently they are in part dissociated from the infant and in part even more deeply buried (incorporated) in the unconscious levels of the personality Similarly the hypnotist who begins as a part of the subject, subsequently is partly disowned the subject conversing with him on an impersonal level as though he were any casual companion At the very same time however on a still deeper level the subject is living, thinking, feeling and acting at the behest of the secret voice of the hypnotist which he carries within him It is this voice which echoes the spoken words of the real hypnotist turning them into the subject's own purposes Thus the hypnotic process parallels with singular precision the development of the relationship of the infant Ego to the adult parental world

Yet just as it is never the actual parent but an image of the parent, so it is not the hypnotist himself but a complex image of the hypnotist which becomes part of the subject This image functions in the subject as does the residue of parental images in adults It delimits memories and contacts dictates purposes distributes inner rewards and inner punishments and engenders tonic effects In some measure therefore, it temporarily dispossesses the earlier authorities (i e , the superego), or merges with them

Furthermore it is precisely this which is at the root of the phenomena of dissociation and of multiple personalities each erected around the nucleus of its own parental or pseudo-parental images In hypnosis the change of this nucleus creates the altered personality in the hypnotized subject, for the apparent or effective Ego can assume before the world only that role which the buried residues of hypnotic pseudo-parental authority will allow It is evident also that the buried (incorporated) image of the hypnotist becomes an experimentally induced superego figure The opportunity which this presents for the study of this process is unsurpassed (*Cf* Brickner and Kubie (1)) This may mean that a successful hypnotic relationship an essential ingredient in any successful psychotherapy if psychotherapeutic processes are ever to succeed in dislodging the earlier incorporated superego figures from their all-powerful positions

Thus in the transition from the process of induction to the fully achieved hypnotic state, certain qualitative changes take place Through

these changes new boundaries are formed between the Ego and the outside world; but the boundary between the past and the present remains indistinct. That which is immediately perceived is fused and integrated with older constellations of perception and association. Thus, patterns and experiences are formed which are psychologically specific for each subject; and the hypnotized individual becomes in no sense an automaton. The sense of continuity of the conscious processes preserves for the subject the sense of integrity of his own Ego. He has no feeling of dissociation, no sense of superimposition of another's will! Without knowing it, he has merely acquired an altered Ego and an altered Superego.

This viewpoint has been set down dogmatically, as though it were self-evident, and as though it were the only possible interpretation of the known facts. To us it seems that clear. Yet we must admit that evidence for it is only fragmentary because it has never been sought systematically. Some of it is found in the experimental work of Fisher and Farber (9), already mentioned; some of it in the earlier studies to which they refer, and some in the classical studies of Sidis to which reference has been made. Among current writers on the theory of hypnotism, the viewpoint which is closest to the one put forward in this communication will be found in White (25) and White and Shevach (26). These papers are valuable for their critical and penetrating reviews of the development of the theoretical understanding of hypnotism and for their bibliographies.

Finally, if this picture is accurate, the hypnotic process can be seen to consist of a seemingly opposite pair of phenomena: first, during the induction process, a state of maximal attention to one group of stimuli, combined with an obliteration of all others, which results in a loss of Ego boundaries and an incorporation of the hypnotist in the subject. Later, in the fully developed stage, a diffusion of sensori-motor relations occurs with a retention of a dominant but repressed link to the hypnotist by the incorporation of a fragmentary image of him in the re-expanded borders of the Ego. In a less exaggerated and therefore less dramatic form the same paired opposites occur together in the everyday experience of growing up, and again in the psychophysiological phenomenon of normal attention. In hypnosis this is sharply intensified by special conditions; but it is evident that such an extension of a normal process should be attainable by simple physiological procedures, without the agency of suggestion, or even of any human contacts. Evidence to support these statements and a description of the essential experiments will be presented in a subsequent communication.

In dissolving the hypnotic state it is evident that the incorporated image of the hypnotist must be dislodged. A discussion of how this is achieved, and how this in turn is related to the psychotherapeutic process in general must be reserved for another communication.

Summary

1. The process of inducing hypnosis and the fully developed hypnotic state are a continuum which can be studied satisfactorily only in the novice, and which under such circumstances consists of three stages which shade from one into the next.

2. In the initiation of the process there is a progressive elimination of all channels of sensori-motor communication between the subject and the outside world, with the exception of the channels of communication between the subject and the hypnotist. As a consequence, during this phase the hypnotist becomes temporarily the sole representative of and contact with the outside world.

3. In this essential characteristic, the induction phase parallels the sensori-motor relationships of the infant to the outside world during the earliest phase of infancy, during which the parents play in the psychology of the infant a role almost identical to that of the hypnotist in the mental life of the subject.

4. The onset of the hypnotic state consists of a partial sleep in which active sensori-motor channels are restricted to those between the subject and the hypnotist.

5. This reduction of sensori-motor channels obliterates the Ego boundaries of the subject and constricts them, which makes inevitable a psychological fusion between hypnotist and subject.

6. This constitutes the second phase in the process, one in which a fusion of subject and hypnotist is achieved, with the result that to the subject the words of the hypnotist become indistinguishable from his own thoughts. It is this in turn which makes possible all of the phenomena of *apparent* passive suggestibility

7. At the same time, this same restriction of sensori-motor relationships induces and makes possible states of hypnagogic revery in which vivid sensory memories and images are released. These images and memories include olfactory, gustatory, tactile, and kinæsthetic modalities of sensation which are not ordinarily easily recalled or vividly imagined.

8. The sensory vividness of these reveries in turn opens the way to buried memories, and particularly to the buried affects which are related to such sensory memories.

9. Physiologically the hypnotic process is shown to be an extension of the processes of normal attention, the result of the creation in the central nervous system of a concentrated focus of excitation with the surrounding areas of inhibition (in the descriptive Pavlovian sense).

10. In turn, this is dependent physiologically upon:

(a) Relative *immobilization* through the immobilization of the head or eye.

(b) The *influence of monotony.*

11. Initiation of monotony depends upon *sensory adaptation,* which in turn is in part dependent upon *rhythm.*

12 Psychologically the creation of the hypnotic state, with its focus of excitation within limited areas, depends upon a diminution of alertness through allaying anxiety and other defenses, a process which is a necessary prerequisite to the suppression of sensory warning signals.

13. The shift to the fully developed final phase of the hypnotic state involves:

(a) A partial re-expansion of ego boundaries

(b) An incorporation of a fragmentary image of the hypnotist within the expanded boundaries of the subject's Ego

14 In this final phase the compliance of the subject to the hypnotist's commands is again more apparent than real, in that the incorporated image of the hypnotist which echoes the hypnotist's voice has for the time being become a part of the subject's temporary Ego

15 It is obvious that the final phase in the hypnotic process, which occurs with the full development of the hypnotic state, parallels precisely that phase in the development of the infant's Ego in which its boundaries gradually expand, with the retention of parental images as unconscious incorporated components of the developing Ego of the infant The incorporated image of the hypnotist plays the same rôle in the hypnotic subject as does the incorporated and unconscious image of the parental figure in the child or adult Hypnosis thus is seen to be an experimental reproduction of a natural developmental process

16 The use of hypnosis in some form may conceivably be necessary, therefore for the complete therapeutic displacement of disturbing superego figures which are retained out of childhood

17 In the hypnotic process mechanisms are at work identical with those seen in the dream such as transference, displacement, condensation, etc) Much has been made of these in the literature, but they are not the essence either of the process or of the state itself

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6

Contributions to Role-Taking Theory:

I. Hypnotic Behavior[1]



Theodore R. Sarbin

This paper attempts to construct from a social psychological standpoint a workable theory of hypnosis. Briefly stated, it essays to demonstrate that hypnosis is one form of a more general kind of social psychological behavior, namely, role-taking.

That a theory based on social psychological considerations is necessary arises from the obvious social psychological nature of the hypnotic situation. The patent dependency of hypnosis on interpersonal relations calls for a theory which is more continuous with social psychological formulations than with outworn physiological speculations (25) or revived mentalistic entities (46). Moreover, the search for shorter and more efficient psychotherapeutic measures (together with the former widespread use of hypnosis in the treatment of the hysterias) suggests a reconsideration of hypnosis in the treatment of certain behavior disorders. Such treatment will be less abused if it rests on a more substantial theoretical framework than formerly. In addition, the potential value of hypnosis as a tool for social science and medical research demands a careful evaluation of the nature

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[1] A preliminary form of this paper was read at the 1946 meetings of the Western Psychological Association. Most of the experimental and clinical work reported in this paper was begun during the author's tenure as a postdoctoral fellow of the Social Science Research Council, 1941–43. The author expresses his gratitude to his colleague, Dr. Harrison G. Gough, and to Dr. R. W. White of Harvard University for critically reading the manuscript.

of hypnosis. Thus appropriate allowances will be made for the perturbations in the experimental field introduced by the use of hypnosis as a research instrument.

Observations Which Must be Accounted for

A theory of hypnosis must account for many phenomena subsumed under a single label. These phenomena and the conditions which elicit them may be grouped for our purposes into these four classes: (1) the apparent discontinuity or dissociation of behavior, (2) the apparent automaticity of response, (3) the disjunction between the magnitude of the response and the procedure which instigates the response, and (4) individual differences in responsiveness to hypnotic induction procedures. These four types of observations are briefly elaborated below.

Apparent Discontinuity

In hypnosis the subject appears to be in a state which is discontinuous from events prior to the initiation of the hypnotic induction procedure. From introspective accounts and from observers' protocols it seems that stimuli are perceived by a markedly altered organism and that the responses are quantitatively and qualitatively different from those in the pre- and post-hypnotic periods. Some of the more dramatic items of conduct which lead to the acceptance of the inference that the subject's behavior is discontinuous (dissociated) are anesthesia, amnesia, post-hypnotic compulsive behavior, hypermnesia and various somatic effects such as the inhibition of gastric contractions. To those who are content only with a superficial examination of hypnotic phenomena it appears that hypnotic subjects can perform acts which violate the limits of everyday behavior. When the data are inspected more closely, however, we find that the changes in behavior which do occur involve chiefly the skeletal musculature *i.e.*, voluntary responses. Responses which are involuntary, such as PGR, blood pressure shifts, and pupillary reflexes are less amenable to verbal instructions, and the limits are extended not too far from the limits of waking behavior (43). Later we shall show that those responses involving the skeletal musculature require no further explanation than that the subject is taking the role of the hypnotic subject as understood by him as a result of his previous interactions with similar social psychological situations. The extension of the limits of behavior involving the autonomic functions is understood in terms of the conception of the organism as-a-whole, a conception which is now generally accepted in sophisticated psychological theory.

Apparent Automaticity

Most of the early theorists were thrown off the trail of a really workable theory of hypnosis by the manner in which acts are carried out under hypnotic stimulation. The word "trance" has been used to express this meaning. In most instances the subject appears to act like an automaton. There is an apparent absence of volitional activity. The experimenter throws out commands which seem to be accepted by the subject without critical consideration. He is often slow, stuporous, and seems to be exerting a great deal of effort to perform simple acts. Retrospective accounts reveal a distinction between obedience as found in everyday behavior and the automatic acceptance of commands without the subjective experience of intent. In addition to accounting for this apparent automaticity, a workable hypnotic theory must account for many acts which are added spontaneously by the subject without the benefit of instruction from the experimenter. Unlike physiologically-oriented theories, the role-taking theory considers these observations under the concepts of role-enactment and role perception.

The Disjunction between the Magnitude of the Response and the Procedure Which Instigates the Response

This aspect of hypnosis is probably responsible for the popular association of hypnosis with magic. The experimenter (or therapist) merely talks to the subject. How, then, can such marked changes in behavior occur merely as a result of verbal instructions? The need for explaining this observation would be less urgent if the stimuli were of the same order of magnitude as are found in extreme stress, fatigue, toxicosis, narcosis, or febrile conditions. In a later section we shall point out how verbal instructions may help the subject focus on and enact a role which may have markedly altered somatic components.

Individual Differences in Response to Hypnotic Induction Procedures

The observation which has received the least attention from the theorists and experimenters is (at least to this writer) the most obvious one, *viz.*, individual subjects respond differently to the same hypnotic procedures. As is well known, many subjects cannot be hypnotized at all, some will exhibit mild cataleptic reactions, and still others will exhibit all the classical responses of hypnosis. Furthermore there is a great deal of variation in the manner in which directions are accepted (or rejected) by subjects

who are apparently hypnotized to the same degree As anyone who has taken the role of a hypnotist knows and as Brenman (7) has concluded from her analysis of various induction procedures, little or no relationship exists between the subject's performance and the specific innovations which are introduced into the hypnotic instructions Since the induction procedure *per se* cannot account for the differential responsiveness of subjects, this leaves the subject *as a person* as the more fruitful focus of study

These four types of observations may be combined into a question, the answer to which will provide us with a more definitive theory of hypnosis: What are the characteristics of those individuals who in response to hypnotic induction procedures, exhibit conduct which is apparently discontinuous and apparently automatic?

Some Concurrent Theories

It is unnecessary to take time out to flog the dead horse of dissociation theory Numerous experiments and sophisticated observations have led to the unmistakable conclusion that the hypnotized subject is not composed of various psychophysiological systems that can be dissociated one from the other White and Shevach (15) have written a thoroughgoing analysis of the concept of dissociation and have concluded that the natural cleavages in the nervous system postulated by Janet are nonexistent

A number of writers cling to the conditioned response theory to explain hypnosis Historically the conditioned response theory stems from this simple explanation The word is the conditioned stimulus and acts as an efficient stimulus This is no more than a structuralization of the old ideomotor hypothesis In 1933 Hull stated it this way "... the withdrawal of the subject's symbolic activities would naturally leave his muscles relatively susceptible to the symbolic stimulation emanating continuously from the experimenter ..." (21, p. 397) From such a conclusion (which seems naively to regard this subject as a spinal animal) Welch has recently presented an hypothesis and an experiment which purport to give credence to the conditioning theory (19, 20) Taking as his point of departure the most commonly used induction procedure, Welch says

> If the subject analyzed himself in some naive fashion, he might say, 'When the hypnotist said I felt A, I felt A, when he said I felt B, I felt B, and now he says I feel X. I feel X.' At this point the generalization has extended to the point that whatever the hypnotist says the subject feels he within limits, actually feels (42, p. 361)

On the basis of his hypothesis that hypnosis is a kind of generalized conditioning, Welch and his co-workers performed a learning experiment (in which, incidentally, none of the subjects was hypnotized) based on this experimental analogue "... a word flashed on a screen was used

as analogous to the spoken word of the hypnotist, and followed by the phenomenon for which the word was a symbol. Thus the word 'music' was followed by the playing of music. After a certain number of trials the word 'electric shock' was flashed on the screen and was not reinforced." His findings were summarized thus: ". . . in a group of 15 subjects, 11, or 73 per cent gave a (PGR) response greater than to any other stimuli."

That Welch has demonstrated a type of abstract conditioning is not to be denied. But he has not shown that this type of conditioning is the important feature of hypnosis. In the first place, many subjects can be hypnotized without using the analogous procedure. If a subject comes into a hypnotic experiment with certain self-perceptions and role-taking skills, it is possible for him to become hypnotized without the usual monotonous delivery and so-called reinforcement. In an unpublished study (36) the present author has shown that some subjects can be hypnotized with these instructions: "Make yourself comfortable in this easy chair. I'll step out of the room for a few minutes so you can relax. When I come back I will count to ten, you will close your eyes and go into a hypnotic sleep." Even if we could accept the analogy between the Welch experiment and hypnosis, there is no answer to the question: Why did the other 27 per cent not condition? If Welch could show that a correlation existed between "abstract conditionability" and hypnotizability, we should still have to fit this correlation into a more comprehensive framework based on an understanding of the antecedents of these individual differences.

Eysenck and Furneaux (12, 13, 17) have also reported some studies which are related to the ideomotor principle. Using a factorial approach, they isolated three factors from a series of psychomotor and other tests. The first, primary suggestibility, is highly correlated with hypnotizability and is best measured by the postural sway test. The second factor, secondary suggestibility, is unrelated to hypnotizability. The third factor, unrelated to the previous two, also predicts susceptibility to hypnosis, and is measured by a test of heat illusion. They conclude that susceptibility to hypnosis is an innate characteristic (presumably on the grounds that psychomotor traits are inborn). This writer would declare this conclusion a *non sequitur*. That hypnotizability and certain traits are shown to be related is an acceptable conclusion, but to posit that this relationship is based on inherited factors is not continuous with the data. Below we try to fit these data into our conceptual framework.

Perhaps the most widely accepted hypothesis at the present time is a conative one which places the phenomena of hypnosis at a high integrative level. A number of writers have contributed evidence to support such a theory, notably Dorcus (10), Lundholm (28), Rosenow (32), Pattie (31), White (43), and Sarbin (37). The most systematic presentation of this hypothesis has been offered by White. He defines hypnosis as "meaningful, goal-directed striving, its most general goal being to behave like a hypnotized

person as this is continuously defined by the operator and understood by the subject." This approach purports to look upon the hypnotic subject as a functionally intact human organism who is very much in contact with stimulus objects and events, trying to conduct himself in certain meaningful ways rather than in the manner of a spinal animal.

White's theory deals with three of the previously identified four sets of observations. It looks first upon the apparent automaticity as a form of striving: the subject tries to behave in an organized manner, following instructions as he understands them. The apparent discontinuity is treated in terms of measurable extensions of the boundaries of volitional control. How the goal-directed striving makes possible this extension of the limits is subject to speculation in terms of "disinhibition of the higher centers." The importance of the procedure for inducing hypnosis is analyzed in terms of relaxation, reduction of sensory input, drowsiness, and a contracted frame of reference. This procedure produces an altered state of the organism which makes possible the success achieved by the striving. The theory fails to provide an explanation for differential susceptibility beyond that due to motivational factors, such as need for submissiveness and deference.

This analysis places the striving in a context beginning with the experiment itself. It fails to recognize explicitly that the subject comes into the hypnotic situation with certain pre-conceptions about the experiment, the experimenter, and even about such items as the place in which the experiment is being conducted. It does not make clear that the subject also comes into the hypnotic setting with certain self-perceptions, and that these self-perceptions will operate toward the subject's being successful or not in his striving to behave "in ways defined by the operator." White's analysis would be more tenable if there were no individual differences in responding to the operator's instructions. Relaxation, drowsiness, and reduction of sensory input—time-consuming processes—obviously would not be involved with those subjects who responded immediately to the command: "Go into a hypnotic sleep."[2] The observable differences in individuals,

[2] In a personal communication R. W. White has extended his theory as follows: "It would have been better, I think, to develop at more length the idea of a contracted frame of reference, or, as I would now prefer to put it, a contracted frame of activation. What has to be explained is how the hypnotic suggestions achieve their peculiar success, and I think the explanation should include two things: first, the presence of a single ruling motivation, and second, the exclusion (by quieting) of all promptings and even of the sensory avenues to such promptings that might set up competing processes. In this contracted field of activation there may be conceived to take place a deep vertical activation, reaching to the affective and autonomic levels, of those processes which are suggested. In contrast to this would be the relatively horizontal activation of everyday life where different processes tend to act together or check each other.

"This (monoideism) appears to me to be the pre-dynamic form of what now looks like the best hypothesis for the nature of the hypnotic state. For present purposes some such term as mŏnomotivation would be more suitable. This view of the matter makes possible a fruitful comparison between hypnosis and

not only in the depth of hypnosis, but also in the kind and quality of spontaneous additions to the operator's directions suggest that we look into the reactional biography of the subject and into the evolution of the stimulus setting for clues as to the nature of hypnosis

The Role-Taking Hypothesis

To fill the gap in White's goal-striving theory another hypothesis is herewith introduced Hypnosis is a form of a more general kind of social psychological behavior known as role-taking In the hypnotic experiment the subject strives to take the role of the hypnotized person the success of his striving is a function of favorable motivation, role-perception, and role-taking aptitude This orientation breaks completely with the tradition of looking on hypnosis as some strange phenomenon for which it is necessary to invent psychophysiological constructions Rather it is placed in continuity with other social psychological conceptions [1]

To adopt a frame of reference that departs from dependence on traditional formulations, and to provide a logical link between the observations and theory, we point to another area of conduct which is apparently automatic, apparently discontinuous elicited by relatively simple verbal instructions, and characterized by individual differences in performance to wit, the drama Introspective accounts and observers reports of stage actors taking roles reveal a kind of behavior which may be characterized in much the same way as hypnosis The apparent discontinuity for example has

other states such as great fear or excitement in which volition is transcended All such states are non-motivational but in the sense that one extremely powerful motive or one strong preoccupation momentarily towers over all other processes Hypnosis achieves the same relative effect at low dynamic intensities quieting the competitors rather than heightening the chief process

[1] The concept of role taking has been described in a previous paper (34) In brief role taking may be summarized as follows (1) Role enactment depends upon prior experience either symbolic or overt in order to build up a perception of a given role (2) Role taking is organismic that is to say it embraces the entire organism not merely the voluntary reaction systems (3) Role-taking occurs with various degrees of participation of the self in the role (this may also be described as levels of consciousness) (4) The perception and enactment of roles is variable inter individually intra individually and culturally both qualitatively in terms of the role behaviors that go to make up any given role and quantitatively in terms of the number of roles available to an individual or group (5) Role taking is a complex form of conduct and can be condensed into significant symbols (6) Role taking can be understood as coordinate with the self a self concept phenomenal self self-dynamism or ego must be postulated in order to understand role-behavior in fact any social psychological behavior To these may be added another item (7) statuses or positions which are established in various ways and which define what roles are appropriate and expected (See also Cameron [8], especially Chapter IV, and a forthcoming book by the writer, *The Psychology of Role-Taking*)

been established as an important factor in dramatic role-taking. The actor's stage behavior appears to be dissociated or discontinuous from his "normal personality." In Archer's classical study of acting (2) some actors report losing themselves completely in certain roles so that they are relatively unaware of the audience or of other physical or social objects. The role may even carry over to offstage statuses. The introspective accounts of actors taking roles are often undifferentiated from the accounts of hypnotic subjects (36).

Allen cites Oesterreich who collected a number of observations on this point. One such observation is reproduced here: "Martersteig compares the personality of the theatrical character to a self suggested to the actor by hypnotism and states that the waking remainder of the actor's consciousness (*Bewusstsein*) can observe the actions of the hypnotic self, as though it were another person, at one time feeling anxiety with regard to them, at another time allowing them to have full play" (1, p. 123).

It appears that the stage director stands in the same relationship to the actor as the hypnotist does to the subject. The statuses or positions are defined beforehand, the specific role-behaviors are dictated by the attempts of each participant to validate his status (27). In short, the participants interbehave with each other in ways that are appropriate to each position, provided of course that such interbehavior can be incorporated by each participant in his self-concept. Because acting has not been burdened with the incubus of dissociation or ideomotor theory, we are not amazed at the frequent marked changes in skeletal and visceral behavior which occur merely because the director tells the actor what to do. The analyst of dramatic acting does not seem to be concerned with such pseudo-problems as the search for a one-to-one constancy relationship between the magnitude of the stimulus (the director's verbal instructions) and the magnitude of the response (the complicated verbal, motor, and visceral reactions of the actor).

From this preliminary description we submit that the role-taking of the stage actor and the role-taking of the hypnotic subject embody the same characteristics. (a) Favorable motivation: the actor's self-concept and his perception of the part to which he is assigned must be congruent, if it is not, then his performance is unconvincing or he pays a terrific psychological price. (b) Role-perception: the actor must first perceive the role he is to play; this is achieved partly by the actor's own experiences with similar stage or real-life roles, partly by the director's definition of the role. (c) Role-taking aptitude: needless to say, some actors can take a role more completely than others. Compare, for example, the performance of Barrymore as Hamlet with the efforts of a high school senior.

Young (46) has criticized such conceptions of hypnosis by saying that the subject is playing a game with himself and with the experimenter. This criticism is invalid because it does not consider an important di-

mension. In the two types of role-playing there is a quantitative difference along a continuum which we may characterize as the "conscious-unconscious" dimension. We may ask, how conscious is the actor of his surroundings, of stimulus-objects, and of himself as compared with the hypnotized subject? Or, to put it in terms more continuous with the present study, what is the relative degree of participation of the self in the role (or in Mead's terms, of the "I" in the "me")? Some actors and some hypnotic subjects become so involved in the role that perception becomes overfocalized and many self-other observations are by-passed. From those studies of acting which have come to this writer's attention, it would seem that there is a great deal of overlap with hypnotic role-taking in this dimension, but there would be, on the average, less participation of the self in the role of actors as compared with hypnotic subjects. Below is a schematization of this dimension of role-taking, in which acting is placed at a relatively high level of differentiation of self from role. The overlapping in the drawing is intentional. Not only is the relationship of acting to hypnosis shown but these forms of role-taking are placed in a larger setting the better to illustrate what is meant by this dimension [4]

states of ecstasy; mystical experiences;
role and self undifferentiated

—

hysterias

hypnosis

—

"heated" acting

—

technical acting,
role and self are differentiated

In the last few paragraphs we have tried to orient the reader away from the necessity of physiologizing about hypnosis by showing the similarity of hypnosis and acting. Thus we can conceive of hypnosis as being continuous with other social psychological events. At this time we submit certain observations to lend support to the central hypothesis, *viz.*, hypnotic role-taking is dependent on at least three factors: favorable motivation, role-perception, and role-taking aptitude.

Favorable Motivation

The most complete paper on this topic has been contributed by White (44). He reviews the studies which have attempted to demonstrate the rela-

[4] This discussion of the role-taking process is given more detailed treatment in a forthcoming article: Sarbin, Theodore R. and Farberow, Norman L. "Contributions to Role-Taking Theory: II. A Clinical Study of Self and Role."

tionship between hypnotizability and motivational variables. The obtained correlations have for the most part not been significantly different from zero. In his own study White finds a small but positive correlation between hypnotizability and the need for deference (.42), and also a small but negative correlation with the need for autonomy (—.42). ". . . there is a great deal of individual variation in the tendencies which are awakened, so that manifest needs like *passivity, exhibitionism, sex,* or *aggression* may sometimes occupy the foreground There is [also] reason to believe that three latent infantile needs sometimes function as motivating forces favorable to hypnosis: the need for *love,* . . . the tendency for *passive compliance,* . . . and the wish to participate in *omnipotence.* . . ." He concludes with this significant statement "It is doubtful whether the analysis of motivational factors can be pushed further except by the intensive study of the subjects as individuals"[5] (11, p. 161)

In terms which are more continuous with those of contemporary social psychology, White's conclusion may be restated as follows: If the subject's perception of the self (self-concept) and his perception of the role (here, the role of the hypnotized subject) are not disjunctive or incongruent, then he may be said to be favorably motivated

One example is herewith presented to facilitate understanding of this formulation The author gave a lecture and demonstration of hypnosis to a group of undergraduates The class instructor had previously pointed out (to the author) several students whom he thought would make good subjects One of these was a young woman of 21 whom he characterized as being dominated by the need for exhibitionism. She had volunteered, along with several others, to be a subject She responded to the usual induction procedures and served as the main subject to demonstrate the usual signs of hypnosis, catalepsy, rigidity, hallucinations, post-hypnotic compulsive behavior, amnesia, age-regression (to a period when she could only understand and speak another language), etc At the end of the meeting those subjects who had passed the usual hypnotic tests were asked if they would participate in an experiment in the author's laboratory. She volunteered along with the others An appointment was made for a week later She came with some friends at the appointed hour. But instead of being the easily-hypnotized subject of the week before, she was extremely resistant and showed external signs of anxiety and conflict. After about 30 minutes the experiment was terminated. In an interview which followed, the subject said, "I could not understand why, but every time you said my eyes were getting heavier, I would try harder to keep them open. When you said I would cooperate, I seemed to say to myself, 'I mustn't do this.'" Further questioning revealed that when she had discussed the demonstration with

[5] The psychoanalytic theories of hypnosis have contributed little to a systematic understanding of hypnosis *except* in the area of motivation. The transference phenomena (14, 38) can be readily translated into the language of social psychology.

her parents, her father had expressed vehement disapproval of her submitting herself to such indignities, and had instructed her not to participate again. At the time, she thought she gave his instructions little attention, but as the time drew near for keeping the appointment, she became more and more anxious 'You know, I always try to please my father"

In this instance we can say that for the first experiment the subject was favorably motivated Her self-concept (dominated by the need for exhibitionism, if the instructor's appraisal was correct) and the perception of the role of the hypnotized subject were not disjunctive In the second experiment the self-concept carried another characteristic—of greater valence than the need for exhibition the maintenance of her father's approval The role of the hypnotized subject was incongruent with her self-perception which perception had been modified by interaction with her father Although she had demonstrated before that she could perceive the role of the hypnotic subject and could enact it with great fidelity, she could not focus on the role because of her changed self-perception

In clinical experience this writer has found that as a patient achieves a set of self-perceptions which makes dependency ego-alien, resistance to hypnosis as a therapeutic aid increases One patient near the termination of therapy was faced with blocking involving her school work This same symptom had cleared up earlier after a few hypnotic sessions When it was suggested that hypnosis be used as an auxiliary therapeutic technique, she was resistant to the idea She said I know it worked before but I would rather work this through on a more mature basis Janet (24) long ago made the same observation, but related it to different concepts

Role-Perception

This concept was first introduced by G H Mead (29) and later by Moreno (30) in his studies of the psychodrama In order to enact a dramatic or psychodramatic role it is necessary for the subject to have a perception of the role (The words "image" and preconception are used by other writers to express the same idea [22]) Through various media of communication, such as parental instruction, motion pictures novels comic strips, radio stories, rumors and folktales role perceptions are built up[6] The role of the father, the role of the teacher the role of the policeman, etc, are built up from interaction with others in the social environment When the subject enters the hypnotic situation, then he comes not only with various self-perceptions, but also with various role-perceptions among them the role of the hypnotic subject The announcement of the experiment and the directions of the operator serve as stimuli which elicit the perception of the role The

[6] In a paper now in preparation the author analyzes in greater detail how the established principles of perception may be applied to role-perception

validity of this conception is suggested by at least three kinds of observations: (1) trance states of certain primitive and religious groups, (2) the role-playing of young children, and (3) clinical and experimental studies.

Trance States

In many cultures trance states mark a *rite de passage*. As an illustration we cite one of Benedict's studies She has described how, among the Plains Indians, an individual will experience many of the phenomena, including hallucinations, which are usually subsumed under the term hypnosis. The content of the hallucinations is relatively constant within groups but highly variable between groups. The role of the trance subject is perceived from interaction with his own group. "The tranced individual may come back with communications from the dead describing the minutiae of life in the hereafter, or he may visit the world of the unborn, . . . or get information about coming events. Even in trance the individual holds strictly to the rules and expectations of his culture, and his experience is as locally patterned as a marriage rite or an economic exchange" (6, p. 77). In brief, the perception of the trance role is built up in social interaction.

Role-Playing of Young Children

Space prevents the identification of the numerous studies which have been reported dealing with the fantasy-roles observed in young children. One can condense the findings for the purposes of this paper into this general statement: The roles which emerge in the fantasy and play activities of young children are dependent upon their being able to perceive other-roles (4, 5, 8, 15). Some of the studies of imaginary companions are especially illuminating (18).

Hartley *et al* have recently reported a pioneering study in an attempt to understand how children perceive ethnic group roles and parental roles. As might be expected, children begin to have role-perceptions at an early age and there are levels of complexity in their formulations of role-perception (20).

Clinical and Experimental Studies

Dorcus *et al.* (10) have reported a study which shows clearly that college students—who make up most of the experimental population—are not naïve subjects as far as hypnosis is concerned For example, of 669 students questioned, 79 per cent answered yes to the question: Is hypnosis possible? To the question, Could you be hypnotized?, 36 per cent said yes, and

15 per cent answered in the affirmative in regard to the possibility of hypnotic amnesia These data may be interpreted to signify that most college students (the usual experimental population) have a perception of the role of the hypnotic subject Not all who have such a role-perception, however, can enact the role The proportion of college students who are successfully hypnotized is much less than would be expected from the Dorcus *et al* data

In an unpublished study (36) the author asked a sophomore class to write descriptions of what takes place in hypnosis This assignment was made a week before the lecture and demonstration of hypnosis Volunteers from this class were subject to the induction procedure described by Friedlander and Sarbin (16) The spontaneous acts, introduced by the subjects without instructions from the experimenter, were noted Of the 12 subjects who volunteered, six subjects were classified as "good' subjects The spontaneous additions of four of these subjects could have been predicted from their descriptions of the week before For example, one subject spontaneously awakened from the trance each time she was given a task which called for opening her eyes Upon a later perusal of her paper we read "A person's eyes must be closed in order to be in a hypnotic trance" Another subject was non-hypnotizable on the first attempt On the second trial he performed all the classical tests His role-description contained the statement "It takes time to learn to be hypnotized Most people can't be hypnotized the first time" A third subject performed all the tests satisfactorily, except where she was asked to rise from her chair and write on the blackboard She was resistant to all suggestions when on her feet Her paper contained this statement 'The subject has to be reclining or sitting" The fourth subject was extremely stuporous, slow-moving, and unable to perform any of the tests He required a vigorous shaking in order to wake him from the trance His paper contained the sentence 'Hypnosis is like a deep sleep, the hypnotizer talks in a low voice and you go into a deep sleep" Of the remaining six subjects, all had a correct perception of the role. Their failure to enact it could be attributed either to unfavorable motivation or to a lack of role-taking aptitude (*t infra*) These observations lend support to the notion that variations in role-perception influence role-enactment

In a clinical study of 10 adult patients in a hospital ward, a standard hypnotic procedure was used except that the operator avoided any mention of the word hypnosis or trance The words relaxation and restful state were substituted By any of the usual criteria none of these patients was hypnotized Five of them fell asleep, however Later the same subjects were told that hypnosis was to be attempted They were told about the phenomena of hypnosis, the manner in which it is induced, and the possible therapeutic outcomes The same induction procedure was used as before but the words hypnosis and hypnotic trance were reinstated. Three of the

ten subjects responded to the usual hypnotic tests. Thus certain conditions leading to the perception of the role were prerequisite for enacting the role of the hypnotized subject.

Role-Taking Aptitude

Since motivational factors are necessary but not sufficient to account for the phenomena of hypnosis, and since role-perception does not automatically lead to role-enactment, a role-taking aptitude is postulated. However, since it is impossible to separate the motivational from the aptitudinal factors in studying hypnosis, White has suggested an experimental design (44). To a certain extent this design controls the factor of motivation and allows for an approximate isolation of the hypnotic aptitude. White recommends that all completely unhypnotizable subjects be eliminated for the reason that subjects with unfavorable motivations will thereby be discarded. The remaining subjects may be placed in two groups—somnambulists, showing marked amnesia, hallucinations and anesthesia, and light trance subjects who show eyelid and limb catalepsy. "It can be postulated that the first group possesses the hypnotic aptitude to a marked degree, the second to a moderate degree. There should accordingly be significant differences between their average scores on tests which measure the hypnotic aptitude." This design was adopted in a study conducted at the University of Chicago by the author on an original sample of 70 undergraduate volunteers. All were given the Minnesota Multiphasic Personality Inventory. All were subject to the same induction procedures. Of the 70, 36 were discarded as non-hypnotizable subjects. All verbalized a role-perception (variations in role-perception were not considered). Of the remainder, 16 fell into the category of somnambulistic subjects, and 18 in the category of light trance subjects. Of the various scales on the test, the Hy (hysteria) scale differentiated the two groups. Using a T-score of 55 as a cutting point, the following four-fold table depicts the results.

	Somnambulists	*Light Trance*
55 and above	12	4
Below 55	4	14

The chi-square value is significant at .01. (The mean T-score of the somnambulists was 60, of the light trance subjects, 51.) Thus a scale which differentiates hysterical patients also differentiates hypnotic subjects. This finding recalls that part of Charcot's theory which regards hypnosis as an artificially induced hysteria. However, none of the subjects was known to be a hysterical patient. We are led to the same conclusions made by clinicians for many years—the good hypnotic subject and the hysterical patient have something in common. We would suggest the role-taking aptitude.

Auxiliary support is given to this conclusion in a study reported by Lewis and Sarbin (26). Here hypnotic subjects were told to imagine eating a meal at a time when they were having gastric hunger contractions. We found a high correlation between the depth of hypnosis (Friedlander-Sarbin scale) and the ability to inhibit hunger contractions. Those who could take the role of the eater- to use an expression of Moreno's—who could imagine themselves ingesting food, initiated a set of internal responses which resulted in the cessation of the gastric contractions. Subjects who could not be hypnotized, who could not take the role either of the hypnotic subject, or of the eater in imagination, showed no cessation of gastric contractions. That role-taking is organismic is demonstrated here.

When we say that the role-taking aptitude is organismic we refer back to our "observations which must be accounted for." We repeated the question raised by the laity and by other theorists How can such marked changes in behavior result from such apparently innocuous stimuli?[7] It is probably not far from the truth to say with Goldstein (19) that any act involves the entire organism. When an individual places himself in the hypnotic situation -when he takes the role of the hypnotic subject he does so organismically. When the subject acts *as if* he is ingesting food, his actions are total. The variation in his bodily responses, of course, will vary with the completeness and intensity of the role-taking.

A further comment is required about the organismic basis of the role-taking aptitude, especially as seen in acts which transcend normal limits. In the case of actors taking a stage role there are some who will enact the role without a preliminary warming-up process, while others require "preparation." In this warming-up or preparatory process the director helps the actor perceive some of the necessary attributes of the role. This might be considered a kind of covert practice in role-taking. In hypnosis the frequent lengthy induction may serve the same purpose, especially where the subject requires time to shift to the type of attentional behavior which is a component of the hypnotic role. Relaxation, diffuseness, and uncritical passivity as components of the role may be perceived by the subject as a result of the experimenter's instructions. When the subject aptly takes the hypnotic role (whether immediately, or after warming up

[7] A philosophical digression is in order here Scientists, no less than laymen, are influenced and limited by their historical and cultural horizons. Growing up in an intellectual environment in which a dichotomy is made between mind and body, between mental events and physical events, scientists are "amazed" when they observe events which are not congruent with the dichotomy. When a scientist's *eidos* is freed from the necessity of fractionating behavior into the dichotomy dictated by 17th century dualism, then he can regard human behavior as organismic. Why should social psychological events not serve as conditions for altering predominantly biological activities? No one is amazed when respiratory changes are observed in attention experiments, or BMR's of westerners become more like those of orientals when living under specified oriental conditions, etc.

via the induction procedures) a shift occurs from a sharp, alert, objective and critical attitude to a relatively relaxed, diffuse, and uncritical one. Because the alert orientation is highly valued and supported in our society some coaching or "preparation" is required for certain subjects. They must shift their focus to a relaxed, diffuse orientation which (as in the case of mystical states, for example) allows for more active motor-involvement and more intense affectivity. The variations in intensity or completeness with which one takes a role, and the concurrent motor and autonomic effects, are probably related to the subject's ability to utilize *as-if* formulations. It is to this notion that we now turn.

The *As-If* Formulation

Upon what does the role-taking aptitude depend? In a prior paragraph we noted the apparent relationship between the role-taking of the drama and role-taking in hypnosis. Mr Arbuthnot, the actor, in taking the part of Hamlet, acts *as if* he is Hamlet and not Mr Arbuthnot. The hypnotic subject acts *as if* he is an automaton (if automaticity is included in his role-perception). As a preliminary postulate we can say that the role-taking aptitude depends upon the subject's participation in *as-if* behavior. That this has a more general application is seen from a logical analysis of Rosenzweig's "triadic hypothesis" (33). In this statement, hypnotizability as a personality trait, repression as an ego-defense, and impunitiveness as a response to frustration are shown to be related. These may be considered *as-if* structures. We have already noted the *as-if* character of hypnosis. In repression the subject acts *as if* an event threatening to the self had not occurred. In the impunitive response to frustration, similarly, the subject acts *as if* the frustrating event were no longer frustrating. The *as-if* formulation may be seen not only in the drama, in hypnosis, but in fantasy, play, and, in fact, all imaginative behavior. Imaginative behavior is *as-if* behavior (40). Some data have been put foward by Jacobson (23), Schultz (39), Arnold (3), and others which may be put to use in formulating our theory. From the proposition that all imaginative behavior is *as-if* behavior, we may state that role-taking aptitude depends upon imagination. The following statements give at least initial validity to this proposition.

In a series of carefully controlled studies Jacobson (23) was able to demonstrate the influence of the subject's imagining certain events upon bodily functions. For example, in a condition of relaxation, a subject was told to imagine elevating his arm. The electrical recording showed activity in the muscles which were involved. Schultz (39) reports many instances of the influence of imagination on various muscular and vascular characteristics. Varondenck (41) tells how imaginary processes (implicit) can spill over into overt muscular movements during the act of imagining. Common

experience verifies the same notion. In imagining a former embarrassing situation we can feel our ears reddening and our faces flushing; in imagining a former painful experience we may involuntarily withdraw from the direction of the imagined stimulus, or in imagining something extremely unpleasant or disgusting we may experience nausea.

Arnold has written the most complete analysis of the relationship between hypnosis and imagination (3). According to her hypothesis, ". . . in hypnosis the individual is actively striving to imagine what the hypnotist describes, and in so doing gradually narrows down his focus and relinquishes control of his imaginative processes. . . . The individual focuses on a situation and actively selects the sensations which he will perceive, he actively focuses on possible situations in imagining, on symbols in logical thinking: and he refocuses on past experiences in remembering. Such focussing . . . is merely directed more efficiently, more intensely, during hypnosis than in waking life, and determined by the hypnotist instead of by the subject himself" (3, p. 127). This writer would amend the last statement to read: The focussing is determined by the hypnotist only insofar as the subject's self-perceptions and role-perception permit such direction. This amendment would follow from a careful consideration of the data Arnold presents from her own experiment which reveals the individual character of the subject's own imagining over and above the directions of the experimenter.

Although Arnold's views are more sophisticated than most previous theories, we are left without any anchorage point for understanding differential responsiveness. The numerous experiments cited by Arnold show the influence of imagination on behavior and the kinds of experimental and clinical situations appear to be of the same kind as the hypnotic situation. But what of the answer to the all important social-psychological question: What are the characteristics of those individuals who are *not* able to focus and thus cannot produce changes in overt or covert behavior?

In Arnold's data is concealed a partial answer to this question. She reports an experiment in which the postural sway technique is used. She tested the hypothesis that a suggestion is acted upon only if the subject actively imagines it. The subjects were told to imagine falling forward. The amount of postural sway was recorded. Comparisons were made between the amount of sway and the reported vividness of imagery. Her conclusion was: The more vivid the imaginative process, the more pronounced the overt movements. From this conclusion and from the long-accepted conclusion about the relationship between the postural sway test and hypnotizability a correlation between vividness of imagery and hypnotic depth could be posited. We could then deduce that hypnotic role-taking depended upon imaginative (*as-if*) processes.[8] One might fit

[8] Clinically, the writer has never found an adult with eidetic or vivid imagery who was not a good hypnotic subject. In a personal communication D. W. MacKinnon reports the same observation.

the previously mentioned findings of Eysenck and Furneaux into this formulation. Subjects who score high on postural sway tests and test of heat illusion are able to imagine vividly in these sense modalities. *A fortiori,* the experiment of Sarbin and Madow (37) may be cited in which the depth of hypnosis and the Rorschach W/D ratio were shown to be correlated. The W or Whole response purportedly indicates a more active imagination.

How, then, does the role-taking theory apply to the four sets of observations previously identified as requiring explanation?

The apparent automaticity is apparent only The subject varies his responses to the hypnotic situation in terms of his perception of the role of the hypnotized subject. If his perception includes automaticity, then he will act like an automaton.

The apparent discontinuity of behavior is also apparent but not real. The subject's behavior is continuous with his pre-experimental behavior—modified only by his enactment of the role of the hypnotic subject. Such "discontinuous" behavior as amnesia, post-hypnotic compulsions, etc., can be understood in terms of the subject's perception of the role, of his facility in *as-if* behavior and of the degree of participation of the self in the role.

The apparent disjunction between the magnitude of the response and the procedure for eliciting the response is a pseudo-problem. The magnitude of the response is not dependent upon the procedure except insofar as it coincides with the role-expectations of the subject. What appears to be a disjunction is a vestigial remnant of an outmoded psychology which sought to find constancy between phenomenal experience and stimulus events If the subject has an adequate perception of the role, if this perception is not incongruent with his self-perceptions, and if he has an appropriate amount of the role-taking aptitude, then he will produce all the dramatic phenomena of hypnosis merely because "the operator talks to him." If he does not or cannot perceive the role, if the role is not congruent with his self-perceptions, and/or he does not have a sufficient amount of the role-taking aptitude or skill, then he will not respond to the operator's demands Thus differential responsiveness is declared to be a function of these three variables.

Summary

The known facts about hypnosis were grouped in four classes of observations: (1) apparent automaticity, (2) apparent discontinuity, (3) disjunction between the magnitude of the stimulus and the magnitude of the response, and (4) differential responsiveness. Because of the obvious dependence of the first three factors upon the fourth (differential responsive-

ness) this question was formulated: What are the characteristics of those individuals who, in response to hypnotic induction procedures, exhibit conduct which is apparently discontinuous and apparently automatic?

We sought to demonstrate that concurrent theories of hypnosis were tradition-bound trying to explain hypnotic behavior in terms of conditioning, heredity, or vague neurological formulae. In order to establish a logical link between hypnosis and another form of social psychological conduct which is accepted without resorting to traditional formulations, we first indicated the similarity between role-taking in the drama and role-taking in hypnosis. We postulated that success in taking a dramatic role or hypnotic role depended upon favorable motivation, a perception of the role, and role-taking aptitude. The chief difference in the two forms of role-taking was the degree of participation of the self in the role (levels of consciousness).

The main portion of our presentation attempted to establish the validity of these conceptions. Favorable motivation was re-defined as congruence between the subject's self-concept and the role of the hypnotic subject. Role-perception is derived from the individual's interaction with various media of communication; the manner in which role-perception influences role-enactment is indicated. Finally, a role-taking aptitude is postulated. From our present state of knowledge this aptitude is probably dependent upon or continuous with the ability of the subject to use *as-if* formulations. Various research and clinical findings were introduced to supply a groundwork for the initial validity of the argument.

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7

The Pavlovian Theory of Hypnosis: An Evaluation[1]

J. P. Das

Exposition

Pavlov's theory of hypnosis is perhaps the first theory of hypnosis to be essentially derived from physiological experiments Arising out of his experiments with dogs, the theory hopes to explain the hypnotic phenomena in human beings

While engaged in experiments on delayed conditioning, Pavlov noticed that some dogs develop a state of drowsiness after the onset of the CS and lasting until the unconditioned stimulus is given, such states of drowsiness were also observed in animals who had been used for conditioning experiments which started some time after the animal was fastened to its stand By the repetition of an already extinguished stimulus or the repetition of a negative stimulus established during differential conditioning, drowsiness could also be aroused Repetition of an indifferent stimulus in a continuous monotonous manner was also observed to produce the same reaction A sufficiently prolonged continuation of any of the above operations led to deep sleep

Pavlov called this a state of inhibition between wakefulness and sleep. He called this a state of inhibition for reasons which shall be clear later.

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[1] The writer is indebted to Professor H J Eysenck for his critical reading of the manuscript, and would also like to thank Drs L H Storms, M. I Soueif, and C M Franks for their valuable comments

The most obvious reason, however, was that it could be produced by the repetition of a stimulus which has acquired inhibitory property.

The following quotation from Pavlov indicates the relation between sleep and inhibition:

> *Internal inhibition*[2] *and sleep are one and the same process . . . inhibition is a partial, fragmentary, strictly localized sleep confined within definite boundaries under the influence of the opposing process: that of excitation; sleep, on the contrary, is an inhibition which has spread over a great section of the cerebrum, over the entire hemisphere and even into the underlying midbrain.* (Pavlov, 1928.)

Thus, sleep and internal inhibition are similar, but not identical.

The phases between wakefulness and sleep are called hypnotic phases by Pavlov. There can be obtained gradual intermediate states of inhibition (hypnosis) ranged from those hardly differing from wakefulness to states tending to deep sleep These states differ in their intensity and extensity of inhibition in the cerebral cortex (Ivanov-Smolensky, 1952, p. 112). As the application of the inhibitory stimulus continues, inhibition begins to spread; unless otherwise directed by verbal suggestions of the hypnotist, gradually the motor areas of the cortex come under inhibition and catalepsy and paralysis may be observed. When inhibition also spreads to the sensory areas and in fact covers the whole cortex, normal sleep develops •

Pavlov noted interesting changes as the state of inhibition deepened In the first stage of hypnosis (in the animal) both the weak and the strong stimuli act exactly alike in eliciting the CR (Conditioned Response). This is called a state of equalization Then comes a stage where the weak stimulus is effective, but the strong stimulus is either not at all effective or has a very weak effect. This state is aptly described as the paradoxical phase. In the third stage, called the ultra paradoxical phase, only the previously elaborated inhibitory agents have a positive effect. Finally, a state of complete inhibition characterizing sleep develops. Pavlov seems to imply that the above-mentioned states develop in the same sequence always. Ivanov-Smolensky mentions experiments where this order is not always maintained

Inhibition, in the Pavlovian system, is a protective mechanism necessary for the survival of the organism. Excitation and inhibition are at opposite poles. When a nerve cell is stimulated beyond its physiological capacity, inhibition sets in. So also, when an extinguished CS (Conditioned Stimulus) is applied continuously, inhibition develops, protecting the cortical cells from "unnecessary" excitation. A partially decorticate animal develops a

[2] For those less familiar with Pavlov's system, internal inhibition is an active, elaborated conditioned inhibition: extinction is an example. In contrast, external inhibition is a passive unconditioned inhibition. A very loud tone abolishes the conditional reflex; this can be explained by external inhibition. Both have the same neurological basis.

state of inhibition more quickly than a normal one, because its remaining cortical cells are liable to be more easily exhausted. Thus, the organism is protected from any stimulations that are not relevant for its survival. Sleep, the manifestation of complete cortical inhibition, is, therefore, a valuable protective mechanism. But how does Pavlov explain the state of hyper-suggestibility in hypnosis? The fact is: under hypnosis, there is a selective inhibition of certain parts of the cortex with points of excitation maintained by the suggestions of the hypnotist. It can best be described by quoting Pavlov: "What is suggestion and auto-suggestion? They are concentrated excitation of a definite stimulation, sensation or its trace, a representation, now in evoked emotion, i.e. excited from an internal connection, an association, excitation having been given a predominant, illegitimate and irrepressible significance . . . In hypnosis, we have a diminished positive tonus (in the cortex) as a consequence of irradiated inhibition. When on such a cortex a word or order of the hypnotizer is directed to a definite point the stimulus concentrates the excitatory process in the corresponding point and is immediately accompanied by negative induction, which causes it, without the slight opposition, to spread over the whole cortex; this is why the word or the order is completely isolated from all influences and is made an absolute, irrepressible, fatally-acting stimulus, even after the subject has returned to the waking state" (Pavlov, 1941, pp. 108-109).

Critique

Pavlov is not the only one who holds that hypnosis and sleep have some essentially common elements. Many past and contemporary investigators implied the existence of such a relationship.

Bechterew (1906) regarded hypnosis as a modification of normal sleep induced by suggestions under appropriate physiological conditions: "Hypnosis is nothing, but a modification of sleep." Schilder and Kauders (1927) also maintained in their monograph that hypnosis is a suggested sleep. They were confident that many of the phenomena in hypnosis could be explained by the psychology of sleep. Brown (1935) was of the same view, apparently resembling Pavlov's. Kostel (1954) considered hypnosis as a special kind of sleep. None of the above investigators *equate* sleep with hypnosis. Barber (1956), however, has reported an experiment where he gave seven suggestions (usual suggestions acceptable in a light to medium depth of hypnosis) to subjects under light sleep and hypnosis. ". . . There were no significant differences between the subject's responses on the seven tests of suggestibility when the subjects were 'lightly sleeping' and after they had been subjected to hypnotic induction." If the degree of suggestibility is taken as an index of hypnotizability (as it is implied in most

of the scales to measure hypnotizability), it would appear that light sleep and hypnosis, within the limitations of the reported study, are not significantly different.

Most Russian studies are biased to the Pavlovian standpoint on hypnosis. Assuming that hypnosis is a state of inhibition, Strelchuk (1953) shows how the hysterics, who have a weak second signalling system, can be more easily hypnotized by verbal suggestions; while the psychasthenics, with a weak first signalling system, are more susceptible to hypnosis through rhythmic, photic or dermal (especially thermal) stimuli. Evidently he does not question Pavlov's view on hypnosis. Korotkin and Suslova (1955) similarly mention that verbal suggestions affect subjects differently, the difference being most noticeable in post-hypnotic suggestion. The type of signalling system, they think, may explain some of these cases.

A field of controversy has been the possibility of establishing or "recalling" CRs during hypnosis. If hypnosis is a state of inhibition, it is argued, previously established CRs should disappear or new CRs should be difficult to form during hypnosis. Arguing, apparently, in this strain, Scott (1930) concluded that hypnosis is not a state of inhibition resembling sleep, because CRs were formed more easily under hypnosis in his experiment. But he did not make sure that the subject was in a really deep state of hypnosis most approximate to sleep, so far as inhibition was concerned. Most of the studies which show a facilitation of conditioning under hypnosis are liable to the following criticism: first, the techniques of many of these studies are faulty; the depth of hypnosis has not always been ascertained or mentioned. Where a mention has been made of the depth of hypnosis, adequate checks do not seem to have been made as to whether the same depth has been maintained throughout the experiment or in every session of the experiment. Only a very deep state of hypnosis can be expected to decrease conditionability, because after all, inhibition is partial in hypnosis. Secondly, it may be argued that with a lesser depth of hypnosis, it is only natural that conditioning would be facilitated It is well known that attitudes interfere with human conditioning (Razran, 1936, 1939). Under hypnosis, when the subject is less critical of what is happening, conditioning may be hoped to be facilitated. Why a really deep state of inhibition is needed to hamper conditioning is shown by two drug experiments.

Sterling and Miller (1941) tried to condition cats under four progressive stages of anaesthesia. Although a small number of cats showed decreased conditioning in the first level (23 per cent.), only on the fourth level was conditioning not possible for any of the cats. Thus it really required a deep level of anaesthesia (and so, inhibition) to abolish conditioning. Headlee and Kellog (1941) found that conditioning proceeded at a lower level, but by no means disappeared under doses of nembutal.

There are quite a few Russian studies showing that conditioning or

some other functions suffer under hypnosis All of them used somnambulistic hypnosis Maiorov (1950) has found that sensory chronaxie is lengthened during somnambulistic hypnosis, inability to do simple additions, anesthesia and absence of blinking were also observed He concludes that these are due to an irradiation of inhibition and dissociation—both characteristic of hypnosis Korotkin and Suslova (1951) report that in the somnambulistic phase, CRs sometimes cannot be established, differentiation is equally impossible, and if CRs can be established at all, they are slowly acquired and have a longer latency The same authors in another paper (1953) report the disappearance of previously established CRs under somnambulistic hypnosis In a stage of lesser trance depth, such CRs do appear Korotkin and Suslova also found that by giving a hypnotic suggestion to inhibit UCS (Unconditioned Stimulus), the CS was inhibited along with the UCS They explain this in terms of irradiation of inhibition (1953c The same authors have shown as did Maiorov, how simple counting and additions become full of errors when worked out under hypnosis The subjects were given equivalent addition and counting tasks in the state of wakefulness and during somnambulistic hypnosis They performed definitely worse in hypnosis[1] The authors conclude from this that under somnambulistic hypnosis higher nervous activities are affected by inhibition The carrying out of post-hypnotic suggestions is also explained by them in terms of inhibition (1953a b) All the experiments mentioned above are consistent with Pavlov's view

The EEG has been used in several studies to settle the issue whether hypnosis is a state of wakefulness or of sleep Before we consider some of them let us point out the basic fallacy that may vitiate such attempts to settle the question The method of many EEG studies has been to obtain records from the same subject, during sleep, hypnosis and wakefulness. When they find that the brain waves under hypnosis resemble those of wakefulness more than they do those of sleep the usual conclusion has been that hypnosis is not sleep This neither supports nor opposes the Pavlovian concept of hypnotic phases as intermediate states of inhibition between wakefulness and sleep It has never been claimed by Pavlov or Pavlovians that hypnosis *is* sleep In fact, in a great many ways, they are considered different Even under the deepest possible level of hypnosis a contact is maintained between the subject and the hypnotist There are still some cortical points which are "awake" In this sense, the cortex is only partially inhibited In sleep, even under light sleep tending to a

[1] There are many studies on learning and memory during hypnosis which report either no deterioration or an improvement of these functions Weitzenhoffer (1953) has written a good review of them so we need not review them here Because even such well-written books, like Hull's (1933) or Weitzenhoffer's, do not contain any reference to Russian or other studies supporting Pavlov's view we thought it appropriate to bring these evidences to light This has been adopted as almost a general policy throughout the present paper

deep one, *the whole cortex is under a state of inhibition.* The inhibition is perhaps only less intense during light sleep Attempt at communication hampers development of sleep, while possibility of communication is an essential characteristic of hypnosis So, if sleep may be visualized to vary in a dimension of intensity of complete cortical inhibition, hypnosis cannot be described in such a dimension The intensity of inhibition in those cortical areas inhibited under hypnosis may be as great as that found in deep sleep But still there would be certain cortical points outside that area: some of those points may be under acute excitation by the verbal suggestion of the operator Seen from this angle hypnosis and sleep appear to lie in orthogonal dimensions

We do not know, then, whether the partial wakefulness of the cortex during hypnosis creates a special problem in comparing the EEG records obtained in sleep and hypnosis with a view towards settling the original issue posed earlier

With this orientation, let us consider some relevant EEG studies Just before going into the literature on hypnosis and EEG we may mention here an experiment showing how Pavlov's concept of cortical inhibition is demonstrable electroencephalographically Morrell and Ross (1953) and Morrell (1956) could show that whenever any of the three types of inhibitions (manifested during extinction delayed and differential conditioning) were induced, a delay in cortical conduction was occurring They used conditioning of cortical alpha rhythm for their CR

Darrow, Henry, Brenman and Converse (1950), in two studies, find a significant difference between states of wakefulness and hypnosis by using EEG "Analysis of available double speed (monopolar) EEG records obtained on 11 fair to good hypnotic subjects shows with only one exception, an increase of average in phase peak to peak correspondence between waves in occipital and motor areas ' The increment for the hypnotic state was significant below 1 per cent level The 'records from some of the same subjects while going to sleep show a similar increase in frontal-motor parallelism during drowsiness or early phases of sleep" Hypnosis was, thus, significantly different from wakefulness and only resembled sleep in the early stages Lundholm and Lowenbach (1942 43) studied the changes in alpha activity under hypnotic suggestions of blindness and deafness They found that alpha activity was present only when there was an actual absence of stimulation When blindness was suggested and a light held in front of the subject's eyes, the alpha rhythm disappeared, they reappeared only when the light was actually removed This shows that physiological modifications, at least in the cortical level, if any, are not made by hypnotic suggestions The same conclusions could be derived from a study of hypnotic anaesthesia and analgesia (Brown and Vogel, 1938) If a light is held before the closed eyes of the sleeper, perhaps the alpha waves would not disappear, if they were present But under suggested hypnotic blindness,

in the same conditions, they did disappear. From this it would be erroneous to conclude that hypnosis is not a state of inhibition resembling sleep. For during sleep, if it were possible to keep the eyes open without awakening the subject as is done under hypnosis, it is probable that holding a light before the open eyes of the sleeper would block the alpha activity. Furthermore under hypnosis, suggestion may be able to inhibit only the *perception* (interpretation of sensation) rather than the physiological outcomes of sensation. A dissociation between sensory and association areas may be the most likely neurological explanation.

Barker and Burgwin (1948, 1949) made a new approach to the problem by distinguishing hypnosis from sleep and hypnotic sleep. They found that when trance was induced without any mention of 'sleep,' 'relax,' etc., the brain wave patterns did not resemble sleep at all. But when the subject was asked to relax, his attention narrowed down and suggestions of sleep were given. Sleep indistinguishable electroencephalographically from normal sleep in various stages could be produced and terminated. "We have repeatedly observed that suggestions which minimize sensory stimuli and ensure maximal muscle relaxation are associated with changes in the brain wave patterns towards that of sleep." It may be remarked that most induction methods use relaxation and suggestions of narrowing down of attention. So it can only be asked whether the brain wave patterns characteristic of sleep do not disappear when communication is attempted with the subject. Sleep, according to these authors, 'is characterized by the absence of active relationship with the environment.' If the operator's suggestions can be accepted as a part of the environment, hypnosis cannot, perhaps, be described in identical terms. Dynes (1947) seems to have overlooked this. He obtained EEG records continuously from subjects during the induction of hypnosis and perhaps implicitly argued that as the subject passes from wakefulness to hypnosis the EEG records would progressively resemble those of sleep. This was obviously not found. He does not even mention whether the subject was taken to a somnambulistic stage.

Summarizing the researches in this field, Chertok and Kramaz (1955) arrive at the conclusion that EEG studies are not yet in agreement about electroencephalographic similarity between sleep and hypnosis. They also report an experiment done by them on good hypnotic subjects. Again, only in some subjects did brain waves resembling those during sleep appear. An absence of operator- and subject-contact could allow the sleep pattern to be retained in some.

In concluding this section we only mean to reiterate our standpoint outlined at the beginning of the section: we do not know whether the partial wakefulness of the cortex during hypnosis may account for all the difference between EEG records obtained under sleep, wakefulness and hypnosis.

An Experimental Support

It has been mentioned before that Pavlov's dogs could develop states of drowsiness under monotonous stimulation. On subsequent occasions, the dogs became drowsy in an increasingly shorter time Thus, at last, a dog may develop drowsiness as soon as it is brought into the laboratory or fastened to its stand. Two distinct points could be noticed: (*i*) a state of drowsiness (as a result of inhibition) can be produced by laboratory techniques; (*ii*) with subsequent practice, the development of such a state may appear as a conditioned response to the environment of the laboratory itself.

These two findings are from studies on dogs Can these be obtained with human subjects? What, if any, is the relation between the speed of development of such a state and the depth of hypnosis attainable for a certain subject? The experiment to be reported was designed to answer these questions

During an experiment on hypnosis and conditioning, it was discovered that some subjects could not be made to wake up easily after hypnosis and some of them became so drowsy during an experiment on eyelid conditioning that they had to be reminded frequently to keep their eyes open. One subject showed this trend so strikingly that it could not be overlooked He was hypnotized, but could not be awakened in the usual manner (counting slowly up to 15 and asking the subject to wake up at the end of the counting) Commands, persuasions, mild shaking, could not wake him After some shouting and severe shaking the subject finally woke up slowly. E (experimenter) assumed that the subject had fallen asleep, but upon asking the subject, he said that he was listening to all the persuasions of E to awaken him, but just could not pull himself out of that state. During the conditioning experiment, he began to feel so extremely drowsy that he could not keep his eyes open, and the experiment had to be discontinued. Later, he reported that in spite of his best attempts, he could not keep his eyes open This case, an extreme of similar cases, led to the experiment to be described below

Method

Four subjects, whom we shall call OF, RA, ST and MA, were used. RA was the case described above. OF and RA had high scores in hypnosis: RA had the highest possible score, 6: OF had a score of 5; ST and MA scored low in hypnosis: 1 and 2 respectively. The lowest possible score was 0 and the highest was 6.

The following device was used to produce inhibition. In a sound proof room, usually used as a conditioning laboratory, S was asked to sit com-

fortably in a dentist type chair. He had, in front of him, a booth with a little red light (5 watt) in the centre. He was instructed to keep looking at the red light all through the experiment A continuous pure tone of 1,110 cs per second, an intensity of 10 decibels above the subject's auditory threshold, was transmitted to the pair of earphones which the subject was wearing The tone was regularly discontinued for .5 second in every 30 seconds S has been asked to blink when he perceived this break in the tone S was wearing a pair of spectacles with plain lenses, on the lens for the right eye, a tiny photoelectric cell was mounted and was connected to an appropriate apparatus, and then to a tracing pen Besides this pen, there was another pen acting as an event marker. Both the pens were parts of a recording millihammeter Thus every time a break in the tone was made, the event marker traced an elevated curve for 5 seconds and if the subject blinked the other pen traced a rather sharp rise E had a switch which, when pressed, would discontinue the tone for 5 seconds, after hich the tone would resume automatically E with all the apparatus was in one part of the room, separated from S by a one-way screen

S was not told about the purpose of the experiment He was told that he is expected to sit relaxed and to blink to the break in the tone

Since the experiment was of an exploratory nature, a rigid common procedure could not be fixed from the beginning It was only broadly decided that the experiment should be carried on for 20 minutes and if an S did not miss a single chance to blink to the break in the tone during that period, the session should come to an end If S began to show signs of drowsiness and failed to blink the session was to continue until he did not blink to 10 successive breaks He was to be taken out of the laboratory, given ten minutes of performance on the pursuit rotor and again brought back for the next session In this way, the experiment was to continue until S did not blink to the first break in the tone

Results

A summary of the results are to be found in the accompanying table. It will be seen that OF could not blink 30 seconds after the 4th session started and RA fell into a state of drowsiness as soon as the 2nd session began. In fact, he later reported that he felt sleepy as soon as he entered the laboratory for the 3rd session Both of these subjects were seen sitting in the chair, with their heads drooping and eyes closed, after they had stopped blinking RA was snoring audibly in the third session In contrast, ST reported having felt only bored MA felt sleepy but said that he did not think that he would have really fallen asleep had the experiment continued longer.

TABLE

Subjects	*Hypnotism Score*	*Trials* and Minutes after which Blinking Stopped*				
ST ..	1	*Did not stop.*				
MA ..	2	*Did not stop.*				
		Sessions				
		i	ii	iii	iv	
OF ..	5	12	10	3	1	(trials)
		6	5	1.5	.5	(minutes)
RA ..	6	12	0	0	—	(trials)
		6	0	0	—	(minutes)

* Every time a break in the tone occurs is called a trial, each trial occurring once in every .5 minute (30 seconds).

Discussion

The results need little discussion. Our first objective was to show that a state of drowsiness, analogous to the one observed in Pavlov's dogs, could be produced in human subjects. Perhaps we can say that we have been able to demonstrate it unequivocally. We have further shown that in those in whom this state of drowsiness developed, it began to take a shorter time with practice, so much so that the mere sight of the laboratory environment initiated it—our subject RA developed drowsiness in less than 30 seconds. Pavlov had also noticed similar phenomena in his dogs. To support hypnosis as a state of inhibition, we find that the two subjects who did not develop such a state scored low in hypnosis—indeed, they are to be classed as unhypnotizable if we were to classify dichotomously. (A person scores two if he does not accept any of the five hypnotic suggestions, apart from the post-hypnotic suggestions, but feels relaxed, heavy and slightly drowsy; a score of one is given when he feels just relaxed.) A correspondence can also be noted between the hypnotic scores and the reaction to the experiments:

ST Hypnosis score: 1, felt bored.
MA Hypnosis score: 2, felt sleepy.
OF Hypnosis score: 5, found sleeping after 30 seconds.
RA Hypnosis score: 6, found snoring.

The number of cases is too small to apply any statistical technique to demonstrate a relationship. It would, however, be permissible to expect a positive correlation between depth of hypnosis attained and the speed of the development of this state of drowsiness under monotonous stimulation. We also found indications of a positive relation between the depth of hypnosis and the speed of conditioning to the monotonous environment of the laboratory which produces the state of drowsiness. Does it imply that a correlation between hypnotizability and conditionability exists? We consider it a likely hypothesis.

We have been calling the experimentally produced state under which the subject could not keep his eyes open to be able to blink a state of drowsiness. This is clearly a superficial nomenclature. If we follow the Pavlovian terminology, it can best be described as a state of experimentally produced inhibition intermediate between wakefulness and sleep. This is a learned state inasmuch as it is amenable to improvement with practice. If a correlation is found between this and hypnosis, and is interpreted as meaning a basic similarity between the two, hypnosis may be defined as a learned state of inhibition and hypnotizability an ability to learn to develop inhibition.

Summary

A brief exposition of Pavlov's conception of hypnosis as a state of inhibition intermediate between wakefulness and sleep was made. Evidence mainly supporting this view was presented. Some relevant EEG studies were examined. Some of them appeared to have disproved the identity between sleep and hypnosis. This was not regarded as evidence against the Pavlovian view of hypnosis. A small experiment carried out by the author was described. It demonstrated the possibility of the development of a state of inhibition (drowsiness) in human subjects by monotonous application of sound and light stimuli in a generally monotonous laboratory condition. Pavlov had demonstrated similar phenomena on dogs. The results of the experiment also suggested that such a development of inhibition improves with practice and may be correlated positively with an increasing degree of hypnotizability.

On the whole, it is felt that there is enough evidence to make out a case for supporting Pavlov's view of hypnosis as a state of partial or selective inhibition.

8

An Interactional Explanation of Hypnosis[1]



Jay Haley

The only reasonable excuse for adding another theory of hypnosis to the many which have been proposed is an entirely new approach to the problem. Previous theoreticians have conjectured about the perceptual or physiological nature of hypnotic trance and the result is a literature on hypnosis consisting of conflicting ideas and insoluble paradoxes. The various theoreticians have proposed at least the following descriptions of hypnotic trance. The trance is sleep but it isn't sleep. It is a conditioned reflex, but it occurs without conditioning. It is a transference relationship involving libidinal and submissive instinctual strivings, but this is because of aggressive and sadistic instinctual strivings. It is a state in which the person is hypersuggestible to another's suggestions, but one where only auto-suggestion is effective since compliance from the subject is required. It is a state of concentrated attention, but it is achieved by dissociation. It is a process of role playing but the role is subjectively real. It is a neurological change based upon psychological suggestions, but the neurological changes have yet to be measured and the psychological suggestions have yet to be defined. Finally, there is a trance state which exists separately from trance phenomena, such as catalepsy, hallucinations and so on, but these phenomena are essential to a true trance state.

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[1] The ideas in this paper represent the combined thinking of the staff of The Project for the Study of Schizophrenic Communication. The staff consists of Gregory Bateson, Jay Haley, John H. Weakland, Don D. Jackson, M.D., and William F. Fry, M.D. The project is financed by the Josiah Macy, Jr. Foundation, administered by the Department of Anthropology at Stanford University, and functions at the Veterans Administration Hospital, Palo Alto, California. This paper was given in briefer form at the First Annual Meeting of The American Society of Clinical Hypnosis.

One can wonder if a rigorous answer is possible to the question: Is there a state called "trance" which is different from the normal state of being "awake"? The 'trance" state is by definition a subjective experience It can be investigated only if the investigator examines his subjective experiences when supposedly in such a state This is a most unreliable method of research, particularly when one is dealing with the slippery perceptive experiences of hypnotic trance Whether or not another person is in a trance state cannot really be known any more than what another person is thinking can be known or even if he is thinking We can observe the communicative behavior of a person, but we can only conjecture about his subjective experiences A rigorous investigation of hypnosis must center on the communicative behavior of hypnotist and trance subject with at most, careful conjecture about the internal processes which provoke that behavior The theory or descriptive explanation of hypnosis offered here will not add to the current confusion about the trance state but will deal only with the interaction between hypnotist and trance subject

Although most attempts to be objective about psychological processes tend to ignore the most significant problems involved there is decided merit in analyzing the manifestations of a subjective state instead of making inferences about the state itself Debate about hypnosis has always centered around the question of whether a subject is *really* experiencing a phenomenon or only behaving as if he is Such a debate is essentially unresolvable The few crude instruments available such as the GSR and the EEG indicate slight physiological changes but no instrument can tell us whether a subject is really hallucinating or really experiencing an anesthesia At most we can only poke him with a sharp instrument in the supposedly anesthetized area or amputate a limb as Esdaile did and observe his communicative behavior Our only data are the communications of the subject, the rest is inevitably conjecture It would seem practical to begin an investigation of hypnosis with an analysis of what can be seen and recorded on film in the hypnotic situation and thereby limit what needs to be inferred from the subject's behavior

If an investigation centers on the process of communication between a hypnotist and subject, then answerable questions about hypnosis can be posed Is the communicative behavior of a supposedly hypnotized subject significantly different from the communicative behavior of that person when not hypnotized? What sequences of communication between hypnotist and trance subject produce the communicative behavior characteristic of a person in trance? Answers to these questions will explain what is unique to the hypnotic relationship and differentiates it from all others To answer such questions a system for describing communicative behavior is needed An approach to such a system will be offered here with the argument that human interaction can be dissected and labeled and that a particular kind of communication sequence is characteristic of the hypnotic relationship.

Accepted Generalizations about Hypnosis

In the literature on hypnosis there is a sufficient repetition of ideas so that a few generalizations can be made about the hypnotic situation which would be agreed upon by most hypnotists. It is now generally accepted that hypnotic trance has something to do with a relationship between the hypnotist and subject. In the past it was assumed that trance was the result of the influence of the planets or merely something happening inside the subject independently of the hypnotist. Currently it is assumed that hypnotic phenomena result from an interpersonal relationship as hypnotist and trance subject communicate with one another by verbal and non-verbal behavior. It is also generally agreed that "trance" involves a focusing of attention. The subject does not while in trance report about activities outside the task defined by the hypnotist and his reports about the hypnotic task are in agreement with the hypnotist's reports. In addition, it is assumed that the relationship between hypnotist and subject is such that the hypnotist initiates what happens in the situation. He initiates a sequence of messages, and the subject responds. The common assumption that the hypnotist must have "prestige" with the subject seems to be an agreement that the subject must accept the hypnotist as the person who will initiate ideas and suggestions. Although the subject may respond to the hypnotist's messages in his own unique way, still by definition he is responding and thereby acknowledging the hypnotist to be the one who has the initiative in the situation. In those instances where the subject decides the task, it is implicitly agreed that the hypnotist is *letting* this happen. It is also accepted that in every induction the hypnotist at some point "challenges" the subject either explicitly or implicitly to try to do something he has been told he cannot do.

These few generalizations are about all the statements which would be acceptable to a hypnotic investigator. When more specific statements are made, debate and dissension arise. However, there is one further generalization which makes explicit what is implicit in most techniques and theories of trance induction, and some consideration should make it acceptable to most hypnotists. Hypnotic interaction progresses from "voluntary" responses by the subject to "involuntary" responses. "Voluntary" responses are those which hypnotist and subject agree can be deliberately accomplished, such as placing the hands in the lap or looking at a light. "Involuntary" responses are those which hypnotist and subject agree are not volitional, such as a feeling of tiredness, levitating a hand without deliberately lifting it, or manifesting an hallucination. Involuntary responses in general consist of changes at the autonomic level, perceptual changes, and certain motor behavior. The motor aspects of trance are particularly obvious during a challenge when a subject tries to bend an arm and cannot because of the opposition of muscles.

Every trance induction method known to this writer progresses either rapidly or slowly from requests for voluntary responses to requests for involuntary ones. This alternating sequence continues even into the deepest stages of trance. When the sequence occurs rapidly, as in a theatrical induction, the hypnotist quickly asks the subject to sit down, put his hands on his knees, lean his head forward, and so on. Following these requests for voluntary behavior, he states that the subject cannot open his eyes, or move a hand, or bend an arm, or he requests similar involuntary behavior. In a relaxation induction the sequence occurs more slowly as the hypnotist endlessly repeats phrases about deliberately relaxing the various muscles of the body and follows these suggestions with others suggesting a feeling of tiredness in his body or some other involuntary response. The most typical hypnotic induction, the eye fixation, involves a request that the subject voluntarily assume a certain position and look at a spot or at a light. This is followed by a request for an involuntarily heaviness of the eyelids. A "conversational" trance induction proceeds from requests that the subject think about something, or notice a feeling, or look here and there, to suggestions that require a shift in the subject's perceptions or sensations. The trance state is usually defined as that moment of shift when the subject begins to follow suggestions involuntarily. Either the subject struggles to move a hand and cannot because of an involuntary opposition of muscles, or he reports a perception or feeling which he presumably could not voluntarily produce.

Before dealing with hypnosis in more interactional terms the hypnotic situation can be summarized according to these general statements of agreement. In the hypnotic situation the hypnotist initiates ideas or suggestions which are responded to by the trance subject. The hypnotist persuades the subject to follow voluntarily his suggestions and concentrate upon what he assigns. When this is done, the hypnotist requests involuntary responses from the subject. The progress of the hypnotic interaction progressively defines the relationship as one in which the hypnotist is in control of, or initiating, what happens and the subject is responding more and initiating less.

Defining a Type of Relationship

As hypnotist and subject, or any two people, interact, they work out what sort of relationship they have with each other. If the relationship stabilizes, the two people work out a mutual agreement about what sort of behavior is to take place between them and therefore what sort of relationship it is. This agreement is achieved "implicitly" by what they say and how they say it as they respond to each other rather than by explicit discussion of what sort of relationship it is. To describe the working out of a particular

relationship it is necessary to differentiate it from others and label it.

If one took all the possible kinds of communicative behavior which might be exchanged between two people, it could be roughly classified into behavior which defines a relationship as *symmetrical* and behavior which defines the relationship as *complementary*. A symmetrical relationship is one between two people who exchange the same sort of behavior. Each person initiates action, criticizes the other, offers advice, and so on. This type of relationship tends to be competitive, if one person mentions that he has succeeded in some endeavor, the other person mentions that *he* has succeeded in some equally important endeavor. The people in such a relationship constantly emphasize their equality to, or symmetry with, the other person.

A complementary relationship consists of one person giving and the other receiving rather than the two competing as in a symmetrical relationship. In a complementary relationship the two people are of unequal status, one is in a superior position and the other is in a secondary position. A "superior" position means that the person initiates action and the other follows that action: he offers criticism and the other accepts it, he offers advice and the other assumes he should, and so on. In such a relationship the two people tend to fit together or complement each other.

This simple division of relationships into two types applies to all two-person systems. No relationship between any two people will consistently be of one type in all circumstances; usually there are areas of the relationship worked out as one type or another. Also a relationship may shift from basically one type to basically another. Such a shift may occur rapidly back and forth or it may consistently tend in one direction. When a child grows up he progressively shifts from a complementary towards a symmetrical relationship with his parents as he becomes an adult.

Each person in a relationship defines the relationship by what he says to the other and the way he qualifies what he says. Although every message interchanged between two people will, in a sense, define the relationship—if only by expressing the ideas "this is the kind of relationship where this sort of thing is said"—still there are certain kinds of messages which make more of an issue of the sort of relationship than other kinds. A professor may lecture and one of his students may ask questions to clarify various points, but then the student may ask a question in such a way that he is implying, "I know as much about this as you do." The professor must then re-define the relationship as complementary—one between teacher and student. The professor does this either by showing that the student does not know as much as he does or by indicating that he does not appreciate the tone of that question. At certain moments, in response to certain kinds of messages, the type of relationship is put in question. The kind of message that puts the relationship in question will be termed here a "maneuver." In the example cited, the student made a symmetrical maneuver—a ma-

neuver defining the relationship as one between two equals. The professor's reply when he puts the student in his place would be a complementary maneuver—a maneuver designed to define the relationship as complementary. Such maneuvers are constantly being interchanged in any human relationship and tend to be most often used in an unstable relationship where the two people are groping towards a common definition of their relationship

Maneuvers, or "relationship messages," tend to put the type of relationship in question and by their nature demand a maneuver in response. If two people, A and B, talk about the weather they may be defining the relationship as neutral and no particular issue is made of what sort of relationship it is. But when one or the other makes a maneuver, the nature of the relationship is immediately an issue Maneuvers consist of (1) requests, commands, or suggestions, that another person do, say, think, or feel something, and (2) comments on the other person's communicative behavior. Should A ask B to do something, then B is immediately posed the problem of whether this is the sort of relationship where A has the right to make that request B is also affected by whether the request was made tentatively or apologetically, or whether it was a rude command Since the relationship is in question, B must either do what A says and accepts A's definition of the relationship, or refuse to do it and thereby counter with a maneuver to define the relationship differently He may, as a third possibility, do what A says but qualify his doing it with a statement that he is "permitting" A to get by with this and therefore he is doing it but not agreeing with A's definition of the relationship

As an example, if one employee asks another employee of equal status to empty the wastebasket, this could be interpreted by the other as a maneuver to define the relationship as complementary or one between unequals. If the other raises his eyebrow, this is describable as a countermaneuver to define the relationship as symmetrical. The first employee may respond to that raised eyebrow by saying "Well, I don't mind doing it myself if you don't want to" In this way he indicates that his original request was not a complementary maneuver but really a symmetrical one, since it was something one equal would ask of another equal The issue was raised because the first employee used that class of message termed here a maneuver- he requested that the other person do something. Similarly if a person comments on another person's behavior, the issue is immediately raised whether this is the sort of relationship where such a comment is appropriate. If one person suggests that another dresses rather sloppily, the counter maneuver may be, "Who the devil are you to tell me how to dress?" Such a comment indicates the relationship is symmetrical rather than complementary

A complication must be added to this simple schema of relationships There are times when one person *lets* another person successfully use a

particular kind of maneuver. For example, A may act helpless and force B to take care of him. Ostensibly A is in a secondary position in a complementary relationship since he is being taken care of. Yet he arranged the situation, and therefore he is actually on the superior end of a complementary relationship. In the same way one person may encourage another to do something which implies that they are two equals. If A lets B use symmetrical maneuvers, then A is initiating the behavior and is in a complementary relationship with B. Whenever one person lets, or forces, the other to define the relationship in a certain way, he is at a higher level defining the relationship as complementary.

Therefore a third type of relationship must be added to the other two and will be termed a meta-complementary relationship. The person who establishes a meta-complementary relationship with another is controlling the maneuvers of the other. He is permitting, or forcing, another person to make maneuvers which define the relationship in a certain way. He may *let* someone else appear in charge of the behavior in the relationship, but since he is labeling what happens as happening with his permission then he is in the superior position of a meta-complementary relationship.

In summary, relationships can be simply divided into complementary and symmetrical with the type of relationship an ongoing subject of definition between any two people. The type of relationship becomes a particular issue when one of the two people makes a maneuver, defined as a request, command, or suggestion that the other person do, say, think, feel, or notice something, or a comment on the other person's behavior. A maneuver provokes a series of maneuvers by both participants until a mutually agreed-upon definition of the relationship is worked out between them. These maneuvers involve not only what is said, but the meta-communication of the two people or the way they qualify what they say to each other. A third type of relationship is proposed, a meta-complementary relationship, to describe that interaction where one person permits or forces the other to use maneuvers which define the relationship in a certain way. The person who acts helpless in order to force someone to take charge of him is actually in charge at a meta-complementary level.

The Hypnotic Relationship

With these types of relationship as background, hypnotic interaction can be described as apparently taking place in a complementary relationship. The hypnotist suggests, and the subject follows his suggestions so that each person's communicative behavior is complementary. The act of making a suggestion is a maneuver to define the relationship as complementary, and the act of following the suggestion is an acceptance of that definition of the relationship.

In hypnotic literature a suggestion is defined as "the presentation of an idea" as if a suggestion is an isolated unit unrelated to the relationship between the two people. Actually the act of making a suggestion and the act of responding to one is a process which has been going on between the two people and will continue. It is a class of messages rather than a single message and is more usefully defined in that way. A "suggestion" is defined here as a maneuver: that class of messages which makes an issue of what type of relationship exists between the person who offers and the person who responds to the suggestion. A suggestible person is one who is willing to accept the interpersonal implications of doing what he is told. This idea is stated implicitly in such comments as "He willingly follows suggestions." It is possible to follow suggestions unwillingly, as well as not to follow them at all, but when a person willingly follows suggestions he is accepting a complementary relationship with the person who is telling him what to do. There are several crucial points about the hypnotic interaction which differentiates it from other relationships.

1. It has been said that certain kinds of messages exchanged between two people make an issue of what kind of relationship they have. The hypnotic relationship consists entirely of the interchange of this class of messages. The hypnotist tells the subject what to do with his suggestions and comments on the subject's behavior. There are no other kinds of messages involved; talk about the weather is not interchanged.

2. When the hypnotist tells the subject what to do, he is defining the relationship as complementary. The subject must either accept this definition by responding and doing what he is told or respond in such a way that he defines the relationship as symmetrical. Some subjects are resistant, and every subject is resistant to some degree, and the central problem in hypnotic induction is overcoming the resistance of the subject. In communications terms "resistance" consists of countermaneuvers by the subject to define the relationship as symmetrical. No person will immediately and completely accept the secondary position in a complementary relationship. The hypnotist must encourage or enforce a complementary relationship by countering the subject's counter-maneuvers. Whereas in ordinary relationships between people both persons may initiate or respond with either symmetrical or complementary maneuvers, in the hypnotic situation the hypnotist concentrates entirely on initiating complementary maneuvers and insisting that the subject respond in agreement with that definition of the relationship. When the subject is "awake," or when the two people are maneuvering differently, the hypnotist may behave symmetrically with a subject, but during the hypnotic relationship his efforts are devoted entirely to defining the relationship as complementary. A complication will be added to this description later, but for the moment let us describe the hypnotist-subject relationship as complementary.

When he meets with particular kinds of resistance, a hypnotist may

explicitly put himself in a secondary position with a subject while implicitly taking control at the meta-complementary level. That is, if the subject insists on defining the relationship as symmetrical, the hypnotist may appear to hand control of the relationship over to the subject by saying that he is only guiding the subject into trance and must follow the subject's lead with whatever he wishes to do. Having placed himself in the secondary position of a complementary relationship, the hypnotist then proceeds to give the subject suggestions and expect him to follow them, thus defining the relationship as complementary with himself in the superior position. Whenever the hypnotist behaves in a symmetrical or secondary way, it is to take control at the meta-complementary level.

3. When a subject accepts a complementary relationship, whether he likes it or not, it becomes possible for him to misinterpret messages from the environment, from another person, or from inside himself. This statement is conjecture, since it describes the internal processes of an individual, yet such an inference seems supportable on the basis of the subject's communicative behavior. When the hypnotist suggests an hallucination, the subject will misinterpret the messages from the environment which contradict the hallucinatory image. The same is true of bodily sensations, emotions, and memories. The more the subject is unable to counter the meta-complementary maneuvers of the hypnotist, the more trance manifestations he is capable of experiencing. To describe his behavior from an interactional point of view, it is necessary to discuss what the evidence is for "involuntary" behavior.

The Involuntary in Terms of Behavior

An attempt to bring rigor into the investigation of hypnosis requires us to deal with observable behavior rather than to conjecture about the internal processes of a subject. When it is said above that the trance subject experiences involuntary phenomena, this statement is unverifiable. We cannot know whether or not a subject is experiencing an hallucination or various bodily sensations and emotions. For example, when a subject's arm begins to levitate we might say that this is an involuntary phenomenon and therefore a manifestation of trance. As a hypnotic subject, we might ourselves experience that hand levitation and feel that the hand was lifting up and we were not lifting it, thus we would subjectively know that this was involuntary. However, as investigators of hypnosis we cannot rely on our subjective experiences. Ideally we should be able to describe the processes of trance induction and trance phenomena while observing a film of hypnotist and subject interacting. Confined to our observations of the film, we could not observe "involuntary" activities by the subject. We could only observe behavior which we *inferred* was involuntary. Our prob-

lem is to describe the communicative behavior of a subject at that moment when we draw the inference that he is experiencing an involuntary trance phenomenon.

To describe communicative behavior one must take into account the fact that people not only communicate a message but qualify or label that message to indicate how the message is to be received. A message may be qualified by another which affirms it, or it may be qualified by one which denies it. Thus a person can step on another person's foot and qualify it with a statement that this was accidental or involuntary. Or the person may step on the other person's foot and qualify this message with a "vicious" expression which indicates "I'm doing this on purpose." Thus a qualifying message may either deny or be incongruent with another message, or it may affirm or be congruent with the other message. When we observe a film of two people interacting and we conclude that something one of them does is "involuntary," we draw that conclusion from the *way* the person qualifies what he does. If we see a trance subject levitating an arm and hear him say in a surprised way, "Why, my arm is lifting up," we conclude that he is experiencing an involuntary phenomenon. Our conclusion is drawn from the fact that the subject is doing something and denying that *he* is doing it. He may make this denial with a verbal comment, with a surprised expression, by the way he lifts the arm, by commenting on it later after he was awake, and so on. He may also say, "Why, my arm is lifting up," and thereby deny that he is lifting it, but say this in an "insincere" tone of voice. That is, he qualifies the arm lifting with two statements: one says "I'm not doing it," the other says, "I'm doing it." When we observe this incongruence between his tone of voice and his statement we conclude that the subject is simulating an arm levitation and that it isn't *really* involuntary. Our conclusion is based on the fact that two incongruences are apparent in the ways he qualifies his messages: (1) He lifts his hand and says he did not, (2) he says he did not in a tone of voice which indicates he did. If he should express astonishment that his hand lifted in words, in his tone of voice, and in his postural communication so that all of his messages are congruent with a denial that he is lifting his arm, then we say it is *really* an involuntary movement.

Besides the fact that we detect simulation of hypnotic behavior by noting two incongruences in the ways the subject qualifies some activity, it seems clear that the goal of hypnotic induction from the behavioral point of view is to persuade the subject to deny fully and completely that *he* is carrying out the activity. That is, the hypnotist pushes the subject towards qualifying his behavior with messages congruent with each other and which as a totality deny that the subject is doing what he is doing. When the subject behaves in this way, an observer reports that the subject is experiencing an involuntary phenomenon.

As an illustration let us suppose that a hypnotist wishes to induce an hallucination in a subject. After a series of interactional procedures from hand levitation through challenges the hypnotist suggests that the subject look up at a bare wall and see that painting of an elephant there. He may do this abruptly, or he may suggest that the subject watch the painting develop there and later press for an acknowledgement that the painting is there. The subject can respond in one of several ways. He can look at the wall and say, "There is no painting there." He can say, "Yes, I see the painting," but qualify this statement in such a way, perhaps by his tone of voice, so that he negates his statement. In this way he indicates he is saying this to please the hypnotist. Or the subject can say, there is a painting on the wall and qualify this statement congruently with his tone of voice, posture, and a contextual statement such as, "Naturally there's a painting there, so what's new? Our hostess has always liked elephants." This latter kind of behavior would be considered evidence of trance.

Characteristic of a person in trance is (a) a statement which is (b) incongruent with or denies some other statement but which is (c) qualified by all other statements congruently. The subject in trance (a) reports a picture (b) on a bare wall, thus making a statement incongruent with the context, and (c) he affirms his statement that there is a picture on the wall with other verbal messages, his tone of voice, and body movement. As another example, the subject lifts his hand during a hand levitation and indicates that *he* is not lifting it. This statement which is incongruent with the lifting hand is supported or affirmed by the ways he says it. If a subject is experiencing an anesthesia, he responds passively to a poke with a pin, thereby respond in incongruently, and he affirms his response with congruent words and tone of voice.

The behavior of a subject in trance is differentiable from the behavior of the subject awake by this single incongruence. A person in normal discourse may manifest incongruences when he communicates his multiple messages or all of his messages may be congruent or affirm each other. The single incongruence is characteristic of trance behavior. Even though several hypnotic tasks may be assigned a subject simultaneously, each is characterized by a single incongruence.

The single incongruence of trance has another characteristic which differentiates it from incongruences in normal communication. This incongruence consists of a denial that he is responding to the hypnotist. The subject is doing what the hypnotist suggests while denying that he is doing what the hypnotist suggests. If a subject levitates a hand, he qualifies this with a denial that *he* is lifting it. When he does this he is indicating that he is merely reporting an occurrence, he does not qualify the lifting hand with an indication that it is a response to the hypnotist even though at that moment the hypnotist is suggesting that the hand lift. Should

the subject act like a person awake and lift the hand while indicating that he is lifting it, he would be acknowledging the hand lifting as a message to the hypnotist. By qualifying the hand lifting with a denial that *he* is doing it, he manifests an incongruence which indicates that he is merely making a report. In the same way the subject merely reports the existence of a painting on the wall instead of indicating that his seeing the painting there is a statement to the hypnotist.

To formalize the behavior of the trance subject, it can be said that any communicative behavior offered by one person to another can be described in terms of four elements: a sender, a message, a receiver, and a context in which the communication takes place. In other words, any message can be translated into this statement:

"I	am communicating something	to you	in this situation."
(a)	(b)	(c)	(d)

Since communicative behavior is always qualified, any element in this message will be qualified by an affirmation or a denial. In a hypnotic trance, the subject denies these elements and does not affirm them. Trance behavior denying each element can be briefly listed

(a) Whenever he requests an "involuntary" response, the hypnotist is urging the subject to deny that *he* is responding or communicating something. The first element of the statement above, "I am communicating," is qualified with a denial and therefore changed to "It is just happening."

(b) The hypnotist not only urges the subject to deny that *he* is originating a message, such as an arm levitation, he may also urge the subject to deny that anything is happening, i.e being communicated. The subject may appear to be unaware that this hand is lifting, thus qualifying the lifting hand with a statement that it is not lifting. Or he may manifest a similar denial by manifesting amnesia. If he qualifies his behavior with a denial that it happened, then nothing was communicated. He can not only say, "*I* didn't lift my hand," but he can say, "My hand didn't lift," and thereby manifest an incongruence between his statement and his lifting hand. When a subject's tone of voice and body movement is congruent with the statement that he does not recall something, or congruent with the absence of a report of some activity during trance, then observers report that he is experiencing amnesia.

(c, d) It is also possible for the subject to deny the final elements in the essential message above. He may indicate that what he is doing is not a communication to the hypnotist in this situation but qualifying, or labeling, the hypnotist as someone else and/or the situation as some other Hypnotic regression is manifested behaviorally by the subject qualifying his statements as not to the hypnotist but another person (after all if he is regressed he has not met the hypnotist yet), perhaps a teacher, and the context as not the present one but perhaps a past schoolroom. When all of his communicative behavior is congruent with one of these incongruent

qualifications, then an observer will report that the subject is experiencing regression.

In summary, a subject in trance as well as a person awake exhibits behavior toward another person which is describable as the statement "I am communicating something to you in this situation." The trance subject qualifies one or all the elements of this statement incongruently so that the statement is changed to "It is just happening," or "Nothing happened," or "I am communicating to someone else in some other place and time."

The problem posed by hypnotic induction is this: how does one person influence another to manifest a single incongruence in his communicative behavior so that he denies that *he* is communicating something, that something is being communicated, or that it is being communicated to the hypnotist in this situation? More simply, how is a person influenced to do what he is told and simultaneously deny that he is doing anything?

Trance Induction in Terms of Behavior

When hypnotic trance is seen as an interaction consisting of one person persuading another to do something and deny he is doing it, then it would seem to follow that trance induction must consist of requests for just that behavior from a subject. The hypnotist must ask the subject to do something and at the same time tell him not to do it. The nature of human communication makes it possible for the subject to satisfy these conflicting demands. He can do what the hypnotist asks, and at the same time qualify this activity with statements denying that he is doing it or that it is being done. Thus he does it, but he does not do it.

To simplify the rich and complex interchange which takes place between a hypnotist and subject, let us describe a hand levitation induction. The hypnotist sits down with the subject and tells him to put his hand on the arm of the chair. He then says something like, "I don't want you to move that hand, I just want you to notice the feelings in it." After a while the hypnotist says, "In a moment the hand is going to begin to lift. Lifting, lifting, lifting." If we could divest ourselves of theories and naively observe this interaction between hypnotist and subject, it would be obvious to us that the hypnotist is saying to the subject, "Don't lift your hand," and then he is saying, "Lift your hand." Since our observation is biased by theories of human behavior, we see this behavior in terms of the unconscious and conscious or in terms of autonomic processes, and so the obvious incongruence between the requests of the hypnotist is not so obvious. Yet we are faced with the inevitable fact that if the subject's hand lifts, he lifted it. He may deny it, but no one else lifted that hand.

There are only two possible responses by a subject to a request that he lift his hand and not lift it. He can refuse to do anything and thereby antagonize the hypnotist and end the trance session. He can lift his hand

and simultaneously deny that *he* is lifting it, or conceivably that it is lifting.[2] A third possibility would be for him to lift it and say he did, and then the hypnotist would say, "But I told you not to lift it," and the procedure would begin again.

Every trance induction method involves this kind of contradictory request. Indeed whenever one requests "involuntary" behavior from another person he is inevitably requesting that the subject do something and simultaneously requesting that he not do it. This is what "involuntary" means.

Not only is the double-level request apparent in trance induction, but during the process of deepening the trance it becomes even more obvious. At some time or other in hypnotic interaction the hypnotist tests or challenges the subject. These challenges are all formally the same: the hypnotist asks the subject to do something and simultaneously asks him not to do it. The most common is the eye closure challenge. The hypnotist asks the subject to squeeze his eyes tightly closed during a count of three, and at the count of three the subject is asked to try to open his eyes. He is told that the harder he tries to open them the more tightly they will remain closed. Once again the request "Open your eyes" is qualified by the statement "Keep your eyes closed." Essentially the subject is told, "Obey this suggestion," and then he is told, "Don't obey my suggestions." When the test is successful and the subject keeps his eyes closed, he is said to be "involuntarily" unable to open them. Observing his behavior we would say he is keeping his eyes closed and qualifying this behavior with the statement that *he* is not keeping them closed.

The Double Bind

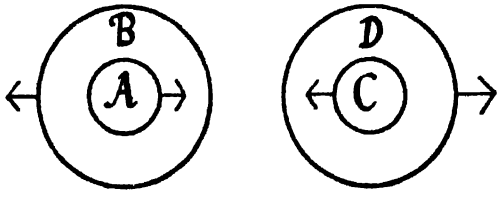
This double level request which the hypnotist poses can be labeled a "double bind" and its characteristics can be described. A "double bind" is present when one person communicates a message and qualifies that message with an incongruent message in a situation where the other person must respond to these contradictory messages, cannot leave the field, and cannot comment on the contradiction (1). The hypnotic situation not only contains double level requests by the hypnotist, but also the other two elements: the subject cannot comment on the contradiction or leave the field. It is difficult for the subject to leave the field because he has usually requested a trance to begin with. Most hypnosis is done with voluntary subjects. It is also difficult for the subject to comment on the incongruence in the hypnotist's suggestions because of the hypnotist's approach. If a subject is asked to concentrate on his hand and comments on this suggestion

[2] The use of the term "denial" here does not imply that the subject is calculatedly denying that he is lifting his hand. He may subjectively be certain that the hand is lifting itself. The emphasis here is on his behavior.

by asking why he should, he is usually informed that he does not need to inquire why but should merely follow suggestions The behavior of the hypnotist rather effectively prevents the subject from engaging in conversation about the hypnotist's behavior

As an illustration of an obvious double bind during a hypnotic induction a resistant subject once said to Milton Erickson 'You may be able to hypnotize other people but you can't hypnotize me' Erickson invited the subject to the lecture platform asked him to sit down and then said to him I want you to stay awake wider and wider awake wider and wider awake The subject promptly went into a deep trance The subject was faced with a double level message Come up here and go into a trance" and Stay awake He knew that if he followed Erickson's suggestions, he would go into a trance Therefore he was determined not to follow his suggestions Yet if he refused to follow the suggestion to stay awake, he would go into a trance Thus he was caught in a double bind Note that these were not merely two contradictory messages they were two contradictory *levels* of message The statement Stay awake was *qualified* by or framed by the message Come up here and go into a trance' Since one message was qualified by another they were of different *levels* of message Such contextual levels of message may occur when verbal statement tone of voice body movement or the contextual situation qualify each other incongruently A double level message may occur in a single statement For example if one person says to another Disobey me the other person is faced with an incongruent set of messages and can neither obey nor disobey If he obeys he is disobeying and if he disobeys he is obeying The statement Disobey me contains a qualification of itself and can be translated into Don't obey my commands' and the simultaneous qualifying statement Don't obey my command to not obey my commands A hypnotic challenge consists of this type of request

When the hypnotist presents incongruent messages to the subject the subject can only respond satisfactorily with incongruent messages The peculiar kinds of behavior exhibited by a hypnotic subject are reciprocals to the hypnotist's requests As an illustration, we can diagram hypnotic interaction in this way



The letter A represents the hypnotist's statement Keep your eyes open and stare at this point This statement is qualified by B "Your eyelids will close" The subject cannot respond satisfactorily if he responds to

A and keeps his eyes open. Nor can he respond satisfactorily by responding to B and closing them. He can only respond with incongruent messages when asked to close his eyes and not close them. He must close them, C, and qualify this closing with a denial that *he* did it, D.

Should the subject respond to only A or B, and thereby respond congruently, the hypnotist is likely to point out to him that he is not cooperating and begin again. More clever hypnotists will handle a congruent response in other ways. For example, if a subject should stubbornly keep his eyes open, thus responding only to A, the hypnotist might suggest that he hold them open as long as he can, no matter how much of an effort this is. In this way he ultimately produces the eye closure and accepts the weariness as an "involuntary" response.

Essentially the hypnotist is saying to the subject, "Do as I say, but don't do as I say," and the subject is responding with, "I'm doing what you say, but I'm not doing what you say." Since human beings can communicate at two levels, this type of interaction becomes possible.

The Hypnotic Relationship

The relationship between hypnotist and subject was previously described as the enforcement of a complementary relationship by the hypnotist. When the subject responds to the hypnotist's messages rather than initiating his own, he is joining the hypnotist in a mutual definition of the relationship as complementary. When the subject "resists," he is opposing the hypnotist's complementary maneuvers with counter-maneuvers. Characteristically these define the relationship with the hypnotist as symmetrical—one between equals - rather than complementary. The hypnotist counters these maneuvers with maneuvers of his own which define the relationship as complementary. He may, for example, ask the subject to resist him. In this way a symmetrical maneuver is re-defined as complementary. It becomes behavior requested, and therefore to respond symmetrically is to do as the hypnotist says and so behave as one does in a complementary relationship. This "topping" or countering the maneuvers of the subject was described as essentially an attempt by the hypnotist to win control of what sort of relationship he and the subject are in.

The particular maneuver of the hypnotist, the double bind, makes it impossible for the subject to counter with a maneuver which defines the relationship as symmetrical. If one is asked to do something and simultaneously asked not to do it, one cannot refuse to follow suggestions. If the subject responds or if he does not respond he is doing what the hypnotist requests and when one does what another requests, he is in a complementary relationship. The subject can only behave symmetrically by commenting on the contradiction or leaving the field and ending the relationship. If

he leaves the field, the relationship is ended. If he comments on the hypnotist's statements and thereby behaves in a symmetrical way, he is likely to meet a counter-maneuver which enforces a complementary relationship. The hypnotist may, for example, suggest that he comment on his behavior, thereby stepping to the meta-complementary level and defining the comments as responses to his suggestions. Then, if the subject comments, he is doing what he is told and therefore defining the relationship as complementary.

A complication must be added to this description of hypnosis. To say that the hypnotist imposes a complementary relationship and the subject in trance is agreeing to this definition is to leave hypnosis undifferentiated from other types of relationship. Conceivably there are many other situations in which one person tells another what to do and the other willingly does what he is told so that they mutually define the relationship as complementary. Yet in these other situations trance behavior is not apparent. The person doing what he is told does not manifest denials that he is doing so. It seems apparent that trance behavior is not explained by saying that the subject and hypnotist behave in those ways which define their relationship as complementary. The complication is this: the hypnotist not only prevents the subject from behaving in symmetrical ways, thus forcing him to behave in complementary ways, but he prevents the subject from behaving in complementary ways as well.

If the subject resists the hypnotist, thus behaving in a symmetrical way, the hypnotist may ask him to resist, thus forcing him to behave in a complementary way. However, if the subject behaves in a complementary way and follows suggestions willingly, the hypnotist then asks him to behave symmetrically. He asks the subject to refuse to follow his suggestions. Essentially a challenge is a request that the subject resist the hypnotist, since the subject is asked to do something the hypnotist has told him not to do. Actually the double bind prevents both complementary and symmetrical behavior. Just as one cannot refuse to respond to a double bind and is thereby prevented from behaving symmetrically, one cannot behave in a complementary way by responding because he is also being told not to respond. The subject is also prevented from achieving the third type of relationship, the meta-complementary. Conceivably he could *let* the hypnotist tell him what to do and in this sense be labeling what the hypnotist does as done with his permission. However when he behaves in this way, the hypnotist requests that he try to prevent himself from doing what the hypnotist asks and acknowledge that he cannot. The challenge forces him to abandon meta-complementary behavior. Whichever way the subject tries to define his relationship with the hypnotist, he finds the hypnotist refusing to accept that type of relationship.

The hypothesis offered here seems to have reached an impasse at this point. It was said earlier that all behavior of a person defines his type

of relationship with another and it was then said that all relationships can be classified as either symmetrical, complementary, or meta-complementary. Now it is said that the trance subject's behavior does not define the relationship in any of these ways. A way out of this impasse is possible when it is seen that *the subject* is not behaving. All of his behavior is labeled as not his behavior, and so he cannot be indicating what sort of relationship he is in. The goal of the hypnotist is precisely this: to prevent the subject from controlling what sort of relationship they have. He prevents the subject from defining the relationship as symmetrical, complementary, or meta-complementary by inducing him to negate or deny that behavior which would define the relationship. If Mr. A is responding to Mr. B, the very existence of that response defines the relationship as complementary. However, if Mr. A responds to Mr. B and denies that *he* is responding, then his response is not defining his relationship. The behavior of the subject in trance does not define a particular kind of relationship but indicates that the subject is not defining the relationship at all. The control of what sort of relationship it is rests with the hypnotist, and this differentiates the hypnotic relationship from all others.

To clarify and differentiate the hypnotic relationship from others, a diagram can be drawn which represents any relationship. When any two people meet for the first time and begin to interact with each other all sorts of messages are potentially possible between them. They may interchange insults, compliments, sexual passes, rejecting statements, violent blows, and so on. All of these potential kinds of interaction are represented in Figure 1 by Xs. As the two people interact, they work out between them what sort of behavior, or what sort of messages are to take place between them. They agree that certain messages are not to occur in this relationship and that other kinds are to be included. Thus they draw a line differentiating what is to take place in this particular relationship and what is not. This is represented by the line in the diagram which includes some Xs and excludes others. For example, if Mr. A criticizes Mr. B, thereby placing criticism from him within the frame of the relationship, Mr. B may say "I won't take criticism from you," thereby excluding it from the relationship. If Mr. A agrees to this, then criticism by him is outside the line rather than in it. Human interaction consists of mutual behavior which indicates where this line is to be drawn.

All the items of behavior, or messages, interchanges by two people can be classified as behavior which defines the relationship as symmetrical or behavior which defines it as complementary. Thus an X in Figure 1 becomes a member of the class "complementary" or the class "symmetrical." A criticism by Mr. A indicates a complementary relationship, and Mr. B's refusal to accept it indicates a symmetrical relationship. In this way the two people work out what sort of relationship it is, complementary or symmetrical, by what sort of behavior they agree shall be included

within the relationship Figure 2 represents a hypothetically extreme complementary relationship

Any two people interacting are constantly working out what sort of behavior is to take place in the relationship However, they are working out a higher level problem who is to decide or control, what sort of behavior is to take place As they behave with each other, each message by the fact of its existence implies that it belongs in the relationship At the same time each message is qualified by other messages which indicate such ideas as 'This message belongs in our relationship," or 'Does this message belong in our relationship?' or 'This message belongs in our relationship whether you like it or not' Implicit in these qualifying messages

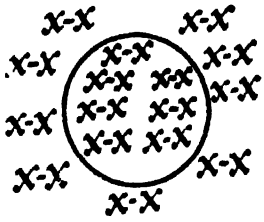


Fig 1

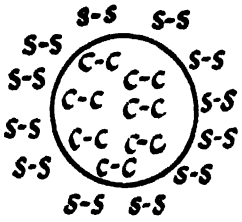


Fig 2

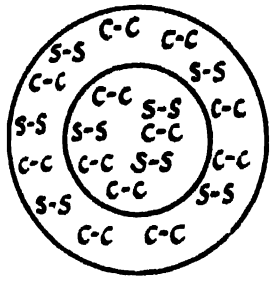


Fig 3

is an attempt to work out who is to decide what message, or type of behavior is to take place in this relationship In a normal relationship this deciding is shared A offers one sort B counters with one of his own and each indicates that he is deciding what behavior is to take place and therefore what sort of relationship it is

What differentiates the hypnotic relationship from others is the mutual agreement which is worked out that the hypnotist is to control what sort of behavior is to take place All behavior from the subject is either initiated by the hypnotist or if the subject does initiate some behavior it is labeled as not being initiated by him To avoid controlling what sort of behavior is to take place the subject must qualify what he does with denials that he is doing it that it is being done or that it is being done in this place and time Thus at the qualifying level he is behaving in those ways which avoid defining the relationship by avoiding the implication that his behavior is done in relationship to the hypnotist The hypnotist takes control not only the behavior which takes place but of the qualifications of that behavior A diagram of the hypnotic relationship would look like Figure 3

By placing whatever happens in the relationship within a meta-complementary frame the outer circle in the diagram, the hypnotist completely

controls what sort of behavior is to take place and therefore where the relationship line is to be drawn The trance is successful when the subject communicates the messages requested by the hypnotist, qualifies those messages with denials that he is communicating them and therefore denies that he is defining the relationship, and thereby acknowledges that the hypnotist is in control of the definition of the relationship This is, of course, a statement about a hypothetically ideal hypnotic relationship In practice no subject will let a hypnotist take complete control of the relationship

When the hypnotic subject avoids defining his relationship with the hypnotist, he appears to experience a variety of subjective experiences at the perceptual and somatic level His perception of himself, the world, time and space, and the behavior of other people undergoes distortions which seem to occur outside of his control and often outside of his awareness This paper has not dealt with the nature or extent of these presumed distortions but rather an attempt has been made to describe the interpersonal context in which they occur Such an attempt has relevance outside the field of hypnosis Many types of psychopathology are characterized by intrapsychic distortions so similar to those which occur in hypnotic trance that hypnotic subjects are often used to demonstrate psychiatric symptoms If less emphasis is put upon the intrapsychic processes of patients and more on their behavior within a relationship it is conceivable that a descriptive system can be developed which will classify the interpersonal situations which provoke many clinical symptoms Although the hypnotic relationship is a unique type, the peculiar kinds of communication sequences which occur between hypnotist and subject may be found outside the hypnotic situation in the personal relationships of individuals Presumably when more exact descriptions of human interaction are developed, the interpersonal situations which provoke intrapsychic disturbances will be better understood

Summary

An interactional description of the hypnotic situation has been presented with special emphasis on the relationship between hypnotist and subject as they communicate with one another The communicative behavior of hypnotist and subject was described in terms of the ways they behave and the ways they qualify that behavior These two levels of communication function together to define the sort of relationship they have with each other It was suggested that the hypnotist communicates two contradictory levels of message to the subject in a situation where the subject must respond, cannot comment on the contradictory requests, and cannot leave the field This double level communication of the hypnotist was termed a "double bind" Induction techniques and "challenges" were described

as requests that the subject do something and simultaneous requests that he not do them. The response of the subject is to do them and deny he is doing them and thereby manifest "involuntary" or trance behavior. The "involuntary" was defined as actions by the subject qualified by statements that the subject did not make those actions. His qualifying statements consist of statements that *he* did not do something, that something was not done, that it was not done for the hypnotist, or that it was not done in this time and place. The hypnotic relationship was classified as meta-complementary within a framework of three possible types of relationship. It was argued that trance behavior takes place when the hypnotist controls what sort of relationship he has with the subject and the subject cannot indicate what sort of relationship it is. The perceptual and somatic experiences of the hypnotic subject were considered a product of this kind of relationship with the emphasis on the interaction, which is observable, rather than on the subjective experiences of the subject, which are conjecture.

9

Hypnosis and the Concept of the Generalized Reality-Orientation[1]



Ronald E. Shor[2]

Hypnotic theory has long been encumbered by concepts such as dissociation, suggestion, ideomotor activity, and automatism. Although useful distinctions are embedded in these concepts, they are incomplete and at times misleading. This paper will attempt to re-synthesize the implications of these concepts in a somewhat different fashion.

A significant advance in thinking about hypnosis became available with White's publication of *A Preface to a Theory of Hypnotism* (26) in which he viewed hypnosis as the result of two intertwined processes: (a) goal-directed striving which (b) takes place in an altered psychological state. White recognized that hypnosis cannot be understood without bearing in mind its motivational field and insisted that hypnosis must become a sophisticated chapter in social psychology before its proper contribution to the understanding of behavior can be made. White recognized that his views were not utterly unique, but his clarity and insistence on their broad mean-

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[2] This paper is from the *Studies in Hypnosis Project* at the Massachusetts Mental Health Center. I wish to thank my colleagues in the Project, Dr. Martin T. Orne, Peter D. Watson and Donald N. O'Connell, for their critical comments and editorial assistance in the preparation of this manuscript. Appreciation is due also to Drs. Ulric Neisser, Abraham H. Maslow, and Harry Rand of Brandeis University, and Dr. Robert W. White, Dept. Social Relations, Harvard.

ing made his formulation a significant advance in theory construction even though admittedly heuristic.

In the first part of his theory White defined hypnosis as "meaningful goal-directed striving, its most general goal being to behave like a hypnotized person as this is continuously defined by the operator and understood by the subject. . . . Goal-directed striving [does not] necessarily imply either [conscious] awareness or intention."

White's view of goal-directed striving is sufficiently well known that there is little need to review it further.

The second part of White's theory, that of the altered psychologic state, has never received more than peripheral attention. Although White considered the notion of altered state vital to any adequate theory of hypnosis, he did not develop what he meant by it beyond asserting its importance. Happily, there are a number of indirect references to the specifications of the altered state spread throughout White's paper so that it is possible to reconstruct his underlying conception of it to some extent from his descriptive statements.

In speaking about trance induction White comments, "When a person is drowsy, his images and experiences tend to become more vivid, more concrete, and more absolute. Abstract processes and complex frames of reference seem to be highly vulnerable to fatigue. The operator avails himself of this vulnerability, reduces as far as possible the perceptual supports which might serve to sustain a wider frame of reference . . . and thus encourages drowsiness to take a small toll from the higher integrative processes." Implicit in this quotation is the recognition that drowsiness *per se* is not the altered state, but rather that drowsiness helps reduce the abstract, integrative frames of reference that usually support and give context for all daily experiences. When the perceptual supports that sustain this wide frame of reference are withdrawn, the frame of reference itself fades.[3] From the quotation it would appear then that White equates the altered state with the loss of a wide, complex, supportive frame of reference which is a kind of mental superstructure used in waking life to give substance and meaning to all experiences. Of special interest is White's observation of the high vulnerability of such supportive frames of reference to fatigue. He implies that the usual state of waking alertness is so fragile that simple drowsiness or fatigue can debilitate it, and implies furthermore that the altered state seen in hypnosis is akin to many related states, that is, wherever the significant aspect of the usual state of waking alertness is temporarily decomposed.

White further states, "It is significant that one of the commonest complaints of unsusceptible [hypnotic] subjects is that they could not forget

[3] The present writer would insist that the altered state can exist without any drowsiness whatsoever. Drowsiness has a certain indirect instrumental value in teaching an individual how to achieve the altered state, but it is not intrinsic to it nor is it essential to go through drowsiness to achieve it.

the situation as a whole . . . insofar as [these] are not signs of unfavorable motivation, they imply that the frame of reference has refused to contract, that in spite of external circumstances there remains an internal alertness to 'other considerations' which is the opposite of drowsiness and the enemy of successful hypnosis." In this passage White emphasizes further that the altered state is a contraction of the usual frame of reference. When this occurs there is a consequent forgetting of the situation as a whole and a loss of the internal alertness to the whole universe of other considerations which usually fills our waking minds.

In a later statement White (27) recognizes the desirability of expanding his views about the altered state.

"It would have been better, I think, to develop at more length the idea of a contracted frame of reference, or, as I would now prefer to put it, a contracted frame of activation. What has to be explained is how the hypnotic suggestions achieve their peculiar success, and I think the explanation should include two things: first the presence of a single ruling motivation, and second the exclusion by quieting of all promptings and even the sensory avenues of such prompting that might set up competing processes." White thus reasserts that hypnosis is to be understood as a complex of two processes; first, the single ruling motivation which is a clear reference to his view of goal-directed striving, and second, the quieting of all avenues of promptings which refers to the altered state. White goes on to describe how these two processes interact in hypnosis and in some related states.

" . . . A fruitful comparison [is possible] between hypnosis and other states, such as great fear or excitement, in which volition is transcended. All such [latter] states are monomotivational . . . in the sense that one extremely powerful motive or one strong preoccupation momentarily towers over all other processes. Hypnosis achieves the same relative effect at low dynamic intensities [by] quieting the competitors rather than heightening the chief process." The relative isolation of the hypnotic strivings is thus viewed as occurring partially by default, i.e, because the usual competitors for attention have been artificially quieted rather than because of an overpowering single motivation, as in states of great fear.

In recent years Sarbin (22) has extended White's theory, rephrasing it into the language of social psychology. White's concept of striving becomes with Sarbin a special case of role-taking, and the altered state a simple derivation of profound organismic involvement in the role. Sarbin views even the deepest hypnotic phenomena as a kind of as-if behavior, which is not sham, but involves such a submergence of the self in the role that the subject can perceive the situation in no other way. He does not try to theorize, however, about the kinds of processes which might underlie such an inability to perceive the situation in another way. That Sarbin's view of this condition is not opposed to White's conception of the altered

state can be seen in the following quotation. "When the subject takes the hypnotic role . . . a shift occurs from a sharp, alert, objective and critical attitude to a relatively relaxed, diffuse, and uncritical one. . . . The alert orientation is highly valued and supported in our society . . . [subjects] must shift their focus to a relaxed, diffuse orientation which . . . allows for more active [role-taking]" (22).

The present paper attempts to develop the system of ideas implicit in White's descriptions of the altered state. A series of twelve propositions has been formulated in regard to the processes that produce the altered state, along with their implications and ramifications for hypnosis, related states, and cognitive theory in general.

1. The usual state of consciousness is characterized by the mobilization of a structured frame of reference in the background of attention which supports, interprets, and gives meaning to all experiences. This frame of reference will be called the usual generalized reality-orientation.

Perhaps the best way to explain what is meant by this proposition is to describe a state of consciousness in which the usual generalized reality-orientation is not mobilized, in order to see more clearly the psychic functions that are imputed to it. Many experiences could be cited as illustrations—from literature, "mystic" experiences, or pathologic states. The best of these have the quality of *merging* of self and world (as in the typical Nirvana experience) whereas the clearest illustration of our proposition would be an instance of the *loss* of self and world entirely. A personal subjective experience of the writer's meets the requirement. The experience is cited purely as illustrative material. It is understood that such material cannot constitute proof but it does supply a useful basis with which to discuss our conception.

Although the experience may appear unusual and idiosyncratic, the writer has been able to secure reports of similar experiences from a variety of people whenever it is clearly understood what kind of experiences are being referred to. Characteristically, people have such experiences but pay no attention to them and are not aware that anything significant has happened. Perhaps the reader may recall similar experiences of his own.

> I had been asleep for a number of hours. My level of body tonus was fairly high and my mind clear of dream-images so that I believe I was not asleep but rather in some kind of trance-like state. At that time I was neither conscious of my personal identity, nor of prior experiences, nor of the external world. It was just that out of nowhere I was aware of my own thought processes. I did not know, however, that they were thought processes or who I was, or even that I was an *I*. There was sheer awareness in isolation from any kind of experiential context. It was neither pleasant nor unpleasant, it was not goal-directed, just sheer existing. After a time a "wondering" started to fill my awareness; that there was something more than this, a gap, an emptiness. As soon as this "wondering" was set into motion there was immediately a change in my awareness.

> In an instant, as if in a flash, full awareness of myself and reality expanded around me. To say that "I woke up" or that "I remembered," while perhaps correct, would miss the point of the experience entirely. The significant thing was that my mind changed fundamentally in that brief instant. In rediscovering myself and the world, something vital had happened; suddenly all of the specifications of reality had become apparent to me. At one moment my awareness was devoid of all structure and in the next moment I was *myself* in a multivaried universe of time, space, motion, and desire.

It will be noted that in this experience the sudden recollection was not of specific things about the world as such; rather, what enveloped me was the whole abstract superstructure of relationships which serves as the foundation for my viewing the world. Into the immediate background of my awareness a framework, or orientation to the world, was reintroduced in which the world existed and in which I as a separate entity existed also. A mental representation of the world suddenly took a position in my mind where it could serve to interpret everything else. I, therefore, "rediscovered" the world, and, as a by-product, found myself in it. It was not simply that the distinction between self and world was remade. Both self and world and the distinction between them were all dependent upon reforming something more profound in which they all existed as by-products.

For whatever complex of reasons, the orientation or framework of experiences which I usually have in my normal waking life- -to interpret automatically and give context to all my thought and experiences was at this time not operating. And although I could reorganize it almost instantly, *until* I had reorganized it, nothing could exist for me except the vaguest awareness without even awareness of self. Before its return, self, world, past, or logic were totally incomprehensible, indeed, they could not even begin to exist. This experience illustrates our proposition that everything which is consciously known is predicated upon there existing in the immediate background of one's awareness a structured complex of recollections that support, give substance to, and critically integrate every further item of experience. Moreover, this usual orientation to reality cannot be taken for granted as a constant *given,* but rather can temporarily disintegrate in special states of mind, such as the one described. This brings us to the second proposition.

2. (*a*) *The generalized reality-orientation does not maintain its regnancy as the cognitive superstructure in the background of awareness without active mental efforts constantly devoted to its maintenance. However, this active effort is not usually consciously directed.*

(*b*) *Whenever its supportive energy diminishes, the generalized reality-orientation fades into the more distant background of attention and becomes relatively nonfunctional.*

In this regard it is proper to reiterate White's reference to the fragility

of wide frames of reference; their vulnerability to fatigue and drowsiness on the one hand and to hyperpreoccupation on the other. It has not gone unrecognized that under certain circumstances such as panic, sleep, toxic states of deprivation, toxic delirium, and perhaps, sensory-deprivation and brainwashing, the generalized reality-orientation has less functional strength, and that consequently, inhibitions, awareness of surroundings, critical capacities, intellectual skills, and the ability to reality-test deteriorate.

Although it is sensible to hypothesize that the generalized reality-orientation is upheld by active efforts on the part of the organism, it should not, however, be conceived as necessarily consciously directed effort. It is consciously directed when we study, i.e., when we deliberately try to structure our mind with various ideas. Most of the time, however, the direction is essentially nonconscious and even seemingly "automatic" (as when we drive our car or play tennis or comprehend a social situation). The organism must maintain an adequate reality-orientation both in the special sense of driving a car or in the more general sense of generalized awareness. He must do this because it is the only "tool" he has to deal effectively with the masses of complex reality stimuli which bombard him throughout waking life. To let it lapse in average day-to-day living is to invite an automobile accident, or more generally, chaos and catastrophe in his commerce with reality.

The special aspect of the generalized reality-orientation necessary for driving—which can be called the special driving orientation once learned becomes automatic and "reflexive" and is usually maintained without apparent effort by the driver. But actually it is fragile and probationary, dependent upon its active maintenance by nonconscious forces. The special driving orientation may lapse to a serious extent in fatigue and monotony states (so-called "highway hypnosis"). Every driver has moments of "temporary inattention." Such "inattention is only secondarily a lack of attention to external reality; even more important is a lack of full and ready mobilization of the special driving orientation by the driver. The central fact is the lapsing of the special driving orientation from its regnancy in the immediate background of attention. Note that the special driving orientation may be fully mobilized in spite of conversations or concurrent thoughts while driving, and that it may temporarily fade at other times for no other reason than that the roadway does not call for its exercise. These factors can also be observed in regard to the more generalized reality-orientation.

In many circumstances, however, it is all right for the individual to allow his reality-orientation to slip away. Sleep is the prime example, but there are other situations, equally nonpathologic, where the individual feels safe and protected enough to do so. Hypnosis is one example. The complete absorption in music, especially of the abstract type, is another; it also occurs in focal attention (24), peak experiences (17), mystic experiences

(12, 13, 14), B-cognition (16), and the inspirational phase of creativity (8, 11). In these latter examples the generalized reality-orientation may not just inadvertently slip away but may be voluntarity and deliberately renounced. Kris gives many examples under the concept of "voluntary regression in the service of the ego" (15).

The Freudian concept of regression thus refers in some fashion to the giving up of the usual orientation to reality but it implies that in its stead a new reality-orientation more appropriate to a prior state of psychosexual development is integrated. The concept that the reality-orientation *per se* may fade is alien to the Freudian view. This is understandable given Freud's interest in psychopathology rather than cognitive organization, but makes the concept of regression too tangential for our use.[1]

3. The generalized reality-orientation is developed slowly throughout the life-cycle.

The work of Piaget (21), Werner (25), and others has demonstrated that an individual's orientation to reality is built up slowly through many stages of development. There is thus little need to expound this proposition further here. Graphic discussions have been long available of the child's first distinction of himself from his environment, the development of a body image, and the emergence of the concept of an external reality, as separated from the self (1, 2, 5, 19).

4. The concept of generalized reality-orientation is not equivalent to the many processes that derive from it, nor is it a mere sum total of them.

The generalized reality-orientation is a structured complex of recollections, an abstractive superstructure of ideas or superordinate gestalt of interrelationships. From its totality are derived various concepts and functions, some of which are reality-testing, body-image, critical self-awareness, cognition of self, world, other people, time, space, logic, purpose, various inhibitions, conscious fears and defenses. Just as the number seven has mathematical meaning only when it is embedded within the whole number system, so, for example, the idea of *self* has no sensible meaning unless embedded within an adequate orientation to reality. This goes beyond the simpler distinction between self and external world. Before the time when a child makes the distinction between self and world, he nevertheless has some kind of reality-orientation, albeit an immature one.

Moreover, the reality-orientation does not exist just to "test" reality. While reality-testing is certainly an important derivation, the conception goes beyond it. The reality-orientation *is* reality, at least in the sense that

[1] Those who wish to view our discussion in general Freudian terminology may consider the generalized reality-orientation roughly equivalent to the cognitive components of the ego or the secondary-process orientation (7). The gestaltist and Lewinian concepts of structured psychological field or lifespace are also applicable if one were to modify the concepts to include nonconscious components.

it is the inner surrogate for reality which the person must have in order to interpret anything (to "test" anything for that matter). All entities and events (self, time, space, purpose) exist for an individual only because they are predicated upon the mobilization of an adequate reality-orientation in which such secondary functions (such as reality-testing and differentiation of self from environment) can exist.

5. The generalized reality-orientation is not an inflexible entity but is of shifting character with many facets. What emerges into the central background of attention depends on the special cognitive requirements of the immediate situation.

It is almost trivial to observe that the mind is devoted to different things at different times, and that the cognitive orientation to the task at hand varies considerably with the differing requirements of the task.[5] The generalized reality-orientation cannot be conceived as an inflexible entity, but rather must be viewed as allowing different aspects of itself to emerge into more central focus while other aspects are relegated to more distant positions.

The reality-orientation is, therefore, always in some flux in normal waking life, so that certain aspects of it are temporarily given more central focus and other aspects are made so distant as to be nonfunctional, except as a mass of vague apperceptions which lies far behind the immediate background of attention. When watching a baseball game, for example, the rules of baseball are given a central position in the background of our attention and many other aspects of the generalized reality-orientation--such as the system of skills used in swimming--are so formless as to be temporarily inoperative. But the important thing about our waking life is that although there can be a relative emphasis on this or that, the remainder of the reality-orientation is still vaguely within the bounds of conscious awareness. If someone asks us about the Australian Crawl, for example, we can pull the relevant information into central focus quickly with no profound shift in mental state, even while watching a baseball game.

This brings us to the next proposition.

6. (a) In normal waking life, even where special aspects of the generalized reality-orientation are in central focus, the rest of it is in close communication at all times. When close communication is lost, the resultant state of mind may be designated as trance.

(b) Any state in which the generalized reality-orientation has faded to relatively nonfunctional unawareness may be termed a trance state.

It is only when we become so absorbed in one segment of reality (and so oblivious to the rest of it that we lose easy contact with it) that we

[5] There is a considerable body of experimental work on these relationships in academic psychology under the concepts of attention, mental set, and selective perception. See also Bartlett's work on schemas (3).

begin to approach the special state of disintegration of the reality-orientation which is trance. Indeed the induction of hypnotic trance takes place in just this way: focusing one's attention on a small range of preoccupations and concurrently allowing the usual orientation to reality to slip away into temporary oblivion so that certain behaviors can function in *isolation* from the totality of generalized experiences.

The concept of isolation stems from Goldstein's work with brain-injured individuals (9). The concept refers to the fact that an altered organism no longer has functionally available the usual background for his reactions, and thus the behavior functions in isolation. Some of the formal characteristics of the brain-injured individual concretization, stimulus boundedness, rigidity—are paralleled by certain analogous characteristics in hypnosis, for example, suggestibility.

In this view then suggestibility and hypersuggestibility are not conceptualized as the primary processes of hypnosis as in the theories of Bernheim (4) and Hull (10), but as secondary or derivative consequences of isolation.

The notion of relatively nonfunctional unawareness can be best understood with an illustration of a common experience.

> I was reading a rather difficult scientific book which required complete absorption of thought to follow the argument. I had lost myself in it, and was unaware of the passage of time or my surroundings. Then, without warning, something was intruding upon me; a vague, nebulous feeling of change. It all took place in a split-second, and when it was over I discovered that my wife had entered the room and had addressed a remark to me. I was then able to call forth the remark itself which had somehow etched itself into my memory, even though at the time it was spoken I was not aware of it.

It will be noted that the experience took place while I was reading a passage in a scientific work which required great absorption of thought for its comprehension. By *absorption* is meant that in order to understand the written statements, it was necessary for me to keep my mind actively structured in regard to the specifications and details of the intricate, technical niche of reality that was being referred to. This meant that I had to keep in mind, actively and continuously, a whole complex of details and interrelationships which were essential at each step of the argument in order to follow it. This does not mean that all details and interrelationships were full-blown and vividly conscious at each instant, but in some fashion there was created in my mind a mental superstructure within which each *new* statement derived its comprehension, and thereby was added in turn, to the intricate mental superstructure.

This intricate mental superstructure thus referred to a specific, technical segment of reality. But the larger superstructure of notions about reality in general (of which this is but an infinitesimal part) which I usually

use most of my waking life to interpret events was temporarily minimized in importance in my mind, and, by default, was pushed far back into the background of my attention and awareness. Note, however, that the book's special superstructure was also in the background of my awareness. But it was in the *immediate* background; it was the "thing" I was using to constantly interpret each new written item. The generalized reality superstructure was in the *more distant* background, and was of little consequence to the immediate task.

It was while I was thus absorbed in the book that my wife entered the room and spoke to me. As noted above, I did not know that she had entered the room, nor did I know that she had spoken to me. In some dim way I was aware of *something* - something intruding. In my phenomenal awareness this something was nothing so formal and structured as my wife speaking to me. Somewhere out of the vaguest depths of awareness an uncomfortable something created a problem in me—a feeling of nebulous discomfort: that there was something to do, something I had to do. An instant later and without apparent discontinuity, I reinstituted into my mind's immediate background of attention an orientation to generalized reality in which things such as other people, spoken language, wives, sitting and reading, and people entering rooms had sensible meaning and existence to me. Once the usual reality-orientation was reinstituted into the immediate background of conscious attention everything was clear to me. The jumble-of-something which had occurred a moment before I now knew to be words; indeed, words spoken by my wife, to *me*. Moreover, the jumble-of-something of a moment before had somehow remained reverberating in my mind, and now that I had reconstituted within my mind an orientation which was *adequate* to it, I thereby and immediately knew what the words were. That is, I remembered something which I had not really known before except as a senseless jumble-of-something (it was not at that time identified even as sounds). The process of recollection was in terms of a new frame of reference to generalized reality so that the same "things" of an instant before were thereby different from what they had been before. In the previous frame of reference such things could only be a jumble-of something; in the new referential schema they were my wife's remark.

What had happened to the generalized reality-orientation when I was absorbed in the book? Nothing, except that it had receded far away into the background of my mind, far from the field of conscious awareness. The generalized reality-orientation had reference to the features of the everyday world. Comprehension of the book required a specific referential schema adequate to the particular character of the book's contents, and this was constructed in the immediate background of my attention. The generalized everyday frame of reference still existed far out on the periphery of awareness-unawareness as a vague, unobtrusive, formless thing, serving as some kind of distant support for my special structuring. Moreover, I

was not aware that it had faded except afterwards when it was reinstated.

In some fashion the comment by my wife communicated with the generalized, everyday frame of reference, and the processes were initiated which brought it into the central arena of my attention. In the process of reinstituting this orientation, however, I concurrently relinquished in part my book's orientation and it took me a number of moments to again "get back into the book." Note that I did not really have to "get back into the book" but rather had to get the orientation of the book back into me.

It will be observed that in this illustration reference is made not only to an extensive fading of the usual generalized reality-orientation, but also to the production of a special little task-orientation. Such a special task-orientation is usually imbedded upon the generalized reality-orientation, but can, as in this instance, function with relative isolation. It is these two cognitive processes which the writer views as composing the hypnotic trance, to wit:

7. *Hypnosis is a complex of two fundamental processes. The first is the construction of a special, temporary orientation to a small range of preoccupations and the second is the relative fading of the generalized reality-orientation into nonfunctional unawareness.*

Although these two processes are cited as the fundamental core of hypnosis, they are not exhaustive of the variables relevant to understanding it. They refer only to the underlying skeleton, i.e., the fundamental cognitive basis of hypnosis which may be assumed universal to all human beings. The flesh and blood of hypnosis –its multidimensional clinical richness and variation—only appears when hypnosis is viewed in terms of the dynamic interrelationships between real people. There is certainly no inherent antagonism between the present conceptualization and more psychodynamically oriented formulations; indeed, they must supplement each other for a complete theory.[6]

Hypnosis, as noted in the example in the above section, is not unique in manifesting these two processes. Unlike related conditions, however, hypnosis has the character of occurring within a special kind of interpersonal situation where the task at hand (the special orientation) is to produce certain expected phenomena and act like a hypnotic subject. When the task at hand is instead a personal preoccupation in a small range of interests, the resultant complex is not labeled hypnosis but rather absent-mindedness, or daydreaming, or intense meditation.

Absent-mindedness is the proverbial occupational hazard of the academic profession. It is not difficult to show its formal similarities with hypnotic trance. A composite picture of absent-mindedness has been drawn by the

[6] For a careful exposition of some of the ways that these two fundamental processes are implemented and affected by personality dynamics and the structure of the cognitive and interpersonal situation in hypnosis see our forthcoming publications from the *Studies in Hypnosis Project.*

writer derived from many informal interviews with absent-minded people. It is presented in the following paragraph.

When they become absorbed in something, every nook and cranny of their minds is filled with affect-charged information that vibrates in vivid availability. "Reality" itself becomes almost exclusively the features and interrelationships of the task at hand and the rest of the world which does not "fit" into the task (the day-to-day world of petty business) slips far away from their immediate concerns. They become so involved in the specific task-orientation that the more generalized reality-orientation in which it resides has faded like a weak Ground behind an attention-compelling Figure. They still operate within the faded reality-orientation to some extent; they will eat lunch unless they forget, keep an appointment if something reminds them, or drive their cars without mishap. Their commerce with reality via the generalized reality-orientation is minimal but just enough to be adequate. Most of their energies are placed within the special task-orientation, and not much remains to support the frame of reference in which day-to-day meanings exist. External events must be especially forceful, with their own inherent organizations, to force their way through their preoccupations so that the meaning will be grasped. Otherwise, they see everything in the terms of the special task-orientation and since for example, "picking up the laundry" has no place or meaning in the task-orientation, it may flit away until the generalized reality-orientation is reintroduced into a more central focus. After they have refocused on everyday reality they may suddenly rediscover that the laundry has been there all the time.

In absent-mindedness then, we find to a lesser degree the same two cognitive processes viewed as fundamental to deep hypnotic trance.

8. The generalized reality-orientation does not fade away completely either in deepest trance or deepest sleep.

Even in the deepest trance the generalized reality-orientation never disappears entirely. Whatever of it does remain, however, is so distant from consciousness that it has little effect upon the content of consciousness. That some modicum of the reality-orientation remains in the psychic distance can be seen in the fact that people do not usually fall out of bed at night and that dreams are censored. Even when the generalized reality-orientation seems utterly disintegrated something of it remains, continuing to function at a deeper level. Any situation arising which calls forth vigilance by the organism rapidly reinstates it. This can be observed in hypnosis where for one reason or another the subject experiences a minor trauma, and as a result the trance begins to lighten or he awakens entirely. In such circumstances subjects will report that suddenly they became aware of noises, of their surroundings, and that thoughts began again to fill their minds, i.e., that they again began to experience the world and themselves in waking terms. Typically, however, they scarcely recall the trauma itself.

Even in psychosis where the generalized reality-orientation is profoundly disturbed (conceptualized in part as breakdown of ego-organization) some aspects of the reality-orientation always remain.

One is usually not aware, moreover, that the wide orientation has faded. Awareness that it has faded itself requires its partial mobilization. One can sometimes feel it slipping away, however. This is an experience which may frighten an insecure hypnotic subject.

9. When the generalized reality-orientation fades (a) experiences cannot have their usual meanings; (b) experiences may have special meanings which result from their isolation from the totality of general experiences; and (c) special orientations or special tasks can function temporarily as the only possible reality for the subject in his phenomenal awareness as a result of their isolation from the totality of general experience.

The meaning of this postulate has been sufficiently clarified in previous sections so that there is little need to expand on it. The postulate is not exhaustive, however, of all the things that may happen when the generalized reality-orientation fades. The next two postulates consider additional occurrences.

10. When the generalized reality-orientation fades, special orientations or special tasks can be made to persist beyond the bounds of awareness and/or remain nonconsciously directive of further activities, even when the generalized reality-orientation is again mobilized.

Reference is made here to the nonconscious maintenance of special orientations in relative isolation from the generalized reality-orientation even after the latter has been returned to functional awareness. This is the familiar basic sequence in repression where impulses are initially repressed, and although kept out of awareness, nevertheless exist, are relatively impervious to conscious direction, and exert indirect expression. That the fundamental cognitive processes underlying these very well-known occurrences can be evoked in an artificial manner in hypnosis (once the generalized reality-orientation has sufficiently faded) can be observed clinically and is the basis for such hypnotic phenomena as artificial "neurotic" complexes, posthypnotic acts with amnesia, automatic writing, and various other dissociated activities.

When the generalized reality-orientation returns, the dissociated complex of strivings is somehow sealed off and kept relatively isolated. It is necessary to assume that this very sealing-off process—whatever one wishes to call it—implies that some communication with the generalized reality-orientation must remain, although this communication may be far beyond the bounds of conscious awareness. As far as phenomenal awareness is concerned, however, there may be an utter and complete dissociation between one's intentions and awareness and the form and contents of the dissociated activities.

Implicit in this formulation is a recognition that when the generalized reality-orientation fades, one can come closer to the sources of his nonconscious functioning. This leads us to the next postulate.

11. When the generalized reality-orientation fades (a) various mental contents excluded before can now flow more freely into phenomenal awareness, and (b) primary process modes of thought may flow into the background of awareness to orient experiences.

Schachtel (23) has observed that there are basically two ways in which capacities and memories are kept out of phenomenal awareness by the usual structuring of the waking mind. The first mode of exclusion is active repression. The second is a passive accomplishment, i.e., certain contents cannot fit into the conventionalized schemata which are the symbolic fabric of the waking mind. In other words, many things simply cannot fit into the logic and specifications of the usual reality-orientation. But as the usual reality-orientation fades, its derivative distinctions between wishes, self, other, imagination and reality fades with it, as do many inhibitions, conscious fears and defenses, and primary-process material and primary-process modes of thought can flow more easily into awareness, and *if* they do, a new kind of orientation is created which shares some of the qualities of the dream. Thus, trance states can be in much greater communication with an individual's nonconscious functioning than in the usual waking state, and it is not surprising that nonconscious strivings may be more easily implemented. All of this becomes the more true the deeper one sinks into hypnotic trance. At first, the subject can hardly distinguish whether he is doing things intentionally or whether they are happening all by themselves, i.e., whether his behavior is consciously directed or directed by nonconscious motivations. As the subject sinks deeper it becomes more apparent to him that things occur without his conscious direction, sometimes even contrary to his conscious attempts at resistance, and these things may then be made to persist even after the usual reality-orientation is remobilized.[7]

A number of the themes in the last three postulates may be summarized to serve as background for the next postulate.

To the extent that the usual reality-orientation fades from the background of awareness, the greater the possibility that other experiences will occur which could not have fit into the usual reality-orientation, the greater the possibility that new, special orientations may be constructed at profound levels without recourse to the logic, knowledge, and critical functions of the usual reality-orientation, and the greater the possibility that primitive,

[7] Erickson (6) maintains that when posthypnotic suggestions are carried out, a spontaneous, self-limited trance occurs for the duration of the posthypnotic act. While this may be true, some complex of strivings or ideas must remain in the interim nonconsciously vigilant for the cues of the posthypnotic act.

syncretic contents and modes of thought will come into awareness. With this as background we may define our conception of a good hypnotic subject.

12. A good hypnotic subject may be defined as a person who has the ability to give up voluntarily his usual reality-orientation to a considerable extent, and who can concurrently build up a new, special orientation to reality which temporarily becomes the only possible reality for him in his phenomenal awareness.

While the concept of new, special orientation is defined from the standpoint of cognition, it is identical with what White has called goal-directed striving from the standpoint of motivation or what Sarbin has called role-taking from the standpoint of social psychology.

One important exception must be made clear. In a minority of hypnotic subjects, after the special orientation has outfitted the mind, many skills of the usual generalized reality-orientation may be brought back into communication with the special orientation, but in a position so subordinated to it that they do not critically undermine it (do not lighten trance). This exceptional ability is not to be confused with what is described above as the construction of a dissociated complex of strivings. A dissociated complex remains relatively isolated when the generalized reality-orientation is reintegrated. In this new instance communication is made between the special orientation and the generalized orientation but in such a way that the latter is kept in a subordinate position rather than becoming superordinate. Only the very best subjects can do this, and they form what might even be considered a qualitatively different group from everyone else.[8] For most subjects, however, when such general features are evoked, the whole inner superstructure of reality tends to be remobilized into a superordinate position and trance lightens, even though role-taking may remain intense.

Many variations in special, temporary reality-orientations are possible and these account for many of the apparent variations in types of hypnotic trance (20). But unless there is a fairly extensive breakdown of the usual reality-orientation it is fallacious to speak of hypnosis at all, no matter how committed the subject is to the special orientation to reality he builds up in regard to the operator's tasks. To the extent that the usual reality-orientation remains in awareness all "hypnotic" behavior must be *as-if*, a sheer playing of a role.[9] To the extent, however, that the usual reality-

[8] Although the best subjects can do this without lightening trance, the most profound somnambulistic phenomena, such as convincing age-regression or time distortion, demand that the usual orientation remain faded.

[9] Orne capitalizes methodologically on this distinction by using a special control group of unsusceptible subjects who are treated experimentally like real hypnotic subjects but who "fake" hypnosis by intensively role-playing without going into trance (20).

orientation fades into unawareness, the special reality-orientation constructed in regard to the role of the subject becomes temporarily, by the very fact of isolation, the only possible reality to the subject.

We can thus speak of hypnosis as having two dimensions of depth: (a) the depth of *trance*, which may be defined as the extent to which the generalized everyday reality-orientation has sunk into nonfunctional unawareness, and (b) the depth of *role-taking*, which may be defined as the extent to which the subject builds up a new, special orientation from the instructions of the hypnotist. Although closely interrelated, considerable confusion results if one confounds these two dimensions of hypnotic depth, based as they are on two logically distinct processes.

It is useful, therefore, to reiterate our distinction between trance and hypnosis. Trance is the superordinate concept used to refer to states of mind characterized by the relative unawareness and nonfunctioning of the generalized reality-orientation. Hypnosis is *a special form of trance* developed in Western civilization, achieved via motivated role-taking, and characterized by the production of a special, new orientation to a range of preoccupations.[10]

Hypnosis is thus an impure concoction of trance and role-taking. Not only is the usual orientation still somewhere in the psychic distance, but the role-taking aspects of hypnosis are in some ways antagonistic to the processes of trance. Many of the technical problems faced by a hypnotist are to be found here. All the other things being equal, certain special limited orientations tend to reintegrate the generalized orientation, others tend to help it slip away. Certain difficult hypnotic phenomena usually can be produced only in deep trance. If they are attempted in lighter trance, they tend to reintegrate the generalized orientation (lighten trance). Thus the two processes can work together or be opposed. A great deal of the hypnotist's skill consists in balancing these two processes, i.e., attuning the tasks given to subjects to their depth of trance so as to help deepen trance rather than lighten it.

Only in the fetus can one conceive of an ideally pure trance state, i.e., a state in which there is a total absence of a functioning reality-orientation. In the developing organism in utero the first momentary ex-

[10] Once deep trance is achieved, however, hypnosis need not involve the playing of any role other than pursuing one's own inner dynamics. In other words, the hypnotist may act as a collaborator to help achieve a state of mind which transcends the playing of an externally defined role, freeing the individual for hypnotic experiences more closely akin to states of profound fascination and absorption of peak experiences or mystic states of inner contemplation. Maslow believes that an overemphasis on "striving-hypnosis" (role-playing) rather than "being-hypnosis" (expressive inner experiencing) has led to a narrow and one-sided conceptual view of hypnosis in the theories of White and Sarbin (18). Compare in this regard Orne's belief that what is seen in hypnosis today in our culture is essentially an historical accident (20).

periences exist concretely, independent of any structured background of experience. The only organization that can take place at first is that which is genetically given. But except for this natural, ontogenetically undeveloped state there is always some degree of structuring. It must take tremendous organismic effort, however, for an infant to learn to construct a generalized reality-orientation and hold it in the background of awareness throughout waking life. The spontaneous, intense absorption which occurs so easily in children, or for that matter the easy deterioration of a child's reality-oriented behavior with fatigue, suggests that children have a less rigid grip on their generalized orientation and its temporary functional loss is more frequent at first than its maintenance. As the child grows older--at least in our culture--the usual orientation takes on a more rigid and demanding character. Trances occur with less frequency and intensity. Man's *second nature* (widely oriented experiencing) becomes so firmly entrenched that it intuitively feels more primary than trance experiencing. If this analysis is correct then the mystery is in the usual state of waking alertness and not in trance. The mystery is not why some people can achieve deep trance states. Rather it is why most people are *not* able to do so. If it is true that active mental effort must be constantly devoted to the maintenance of the usual orientation then what accounts for our inability to let go of it? What kind of learning processes interfere with one's natural capacity to relinquish voluntarily his functional orientations? What enculturation processes interfere with the facile development of trance states so easy for us in childhood? It is with this problem that the paper ends.

Summary

White's theory that hypnosis is a combination of (1) goal-directed striving in (2) an altered psychologic state of the organism was a significant advance in hypnotic theory construction. While the first part of White's theory has received considerable attention, the second part has been relatively ignored. Twelve propositions are formulated in regard to the altered state, which is defined as the relative breakdown of the usual orientation to generalized reality into nonfunctional awareness. Hypnosis, as conventionally understood, is viewed as the production of a special task-orientation with the concomitant breakdown or voluntary relinquishing of the usual reality-orientation so that the former functions in relative isolation from the totality of general waking experiences. Ramifications of this view are presented, along with a distinction between trance and hypnosis. The relationship between hypnosis and certain states such as absent-mindedness is discussed. The propositions are phrased so as to refer to human cognition in general.

10

Three Dimensions of Hypnotic Depth[1]



Ronald E. Shor[2,3]

In an earlier publication the writer formulated a series of twelve propositions in regard to two fundamental cognitive processes assumed to underlie hypnotic phenomena (Shor, 1959). These propositions are properly seen as an elaboration of White's dual-factor theory of hypnosis (White, 1941). The new formulations were advanced as a synthesis of many useful distinctions embedded in many theories of hypnosis. Expressly stated, however, was the conviction that more psychodynamically-oriented formulations must supplement these initial twelve propositions. In the present paper nine additional propositions are formulated which extend the present dual-factor theory to include a third factor. Each of these three factors is conceived as a dimension of hypnotic depth which may vary independently of the other two. Background material contributing to this view are certain selected writings of White (1937; 1941) and of Schilder and Kauders (trans. 1956) which will be reviewed before presenting our additional propositions.

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[2] Postdoctoral Fellow, MF-7860-C3, National Institute of Mental Health, Public Health Service.
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White's Dissatisfaction with Unidimensional Measures

White (1937) became dissatisfied with unidimensional measures of depth of hypnosis when, in spite of the use of rigorously uniform procedures in his experiments, he observed two distinct and consistent *types* of hypnotic behavior among individuals capable of entering deep hypnosis. White noticed that his outwardly standard induction techniques were not uniformly perceived by his subjects. A subject's personality, he felt, predisposed him to select and respond to those aspects of suggestions which would fit his needs and expectations.

Ordinary hypnotic suggestions request that the subject both obey and at the same time "sleep." These two intertwined requests are not wholly consistent. Obedience requires activity and careful attention to the wishes of the hypnotist. "Sleep" requires passivity and oblivion. White believed that a subject tends to select and emphasize in his behavior one of these two somewhat inconsistent commands (to obey or to "sleep") and to de-emphasize the other. This differential emphasis on one or the other aspect of hypnotic suggestions produces two types of hypnosis—active and passive.

> The active subject behaves as if he were in a completely submissive state He seems to fall in eagerly with the hypnotist's assertions. He does what is suggested, promptly and without urging. . . . He acts as if his dominant need . . . were to be controlled by the hypnotist, to yield initiative, and be his willing instrument. In contrast to this, the passive subject seems bent on immobility. He can be made to move, or to wake, only by urgent efforts on the part of the hypnotist. . . . It does not seem that he is particularly concerned with the hypnotist and his wishes. . . . The passive subject behaves as if his dominant need were to enter a sleep-like state, free from the necessity of expending energy . . . [and free from] resuming the responsibility of waking life (p. 283).

In spite of their passivity and disinclination to respond outwardly, passive subjects may be no less affected than active subjects, even though they necessarily do less well on 'objective' depth rating scales.[4]

> To outward appearance [the passive subject] may appear far more deeply 'entranced' and slumberous. By ordinary rating methods, however, [the active subject] would receive a mark signifying greater depth, since he realized more readily and completely the test suggestion (p. 280).

White concludes that the process of assigning comparative scores to all subjects on a unidimensional scale of hypnotic depth obliterates this important distinction.

[4] Passive subjects are especially penalized on scales that measure *the amount of time* it takes to respond.

> An hypnotic rank order [a unidimensional scale of depth] brings to the top (p. 286) . . . at least two quite different kinds of people. It is doubtless for this reason that investigations into susceptibility conducted by correlation methods have hitherto yielded no consistent results (p. 288).[5]

Within the confines of this one report, White does not suggest how to remedy scales of hypnotic depth to account for his active-passive distinction. In his larger theoretical work on hypnosis, however, two dimensions or factors of hypnotic depth are implied, which if measured separately would allow for the distinction.

In White's theory (1941) hypnosis is viewed as the result of two intertwined processes: (a) goal-directed striving, which takes place in, (b) an altered psychological state. White defines the first aspect of hypnosis as "meaningful goal-directed striving, its most general goal being to behave like a hypnotized person as this is continuously defined by the operator and understood by the subjects. . . . Goal-directed striving [does not] necessarily imply either [conscious] awareness or intention."

In other words, the subject is motivated to take the role of a hypnotized subject and such role-taking may sink below the level of purely conscious direction. It is clear that what White here calls the "goal-directed striving" aspect of hypnosis is a direct translation of what he sees emphasized in the active subject as eager obedience.

White defines the altered psychological state, the second aspect of hypnosis, as a state of mind in which all wide cognitive frames of reference--the higher integrative and abstractive processes--are reduced. The altered state implies an obliviousness to the situation as a whole because of a temporary loss of the perceptual supports which usually give context to experience. It is clear that what White here calls the "altered state" aspect of hypnosis is a direct translation of what he sees emphasized in the passive subject as sleep-like oblivion.

One might suppose that in most hypnoses these two aspects are in relative balance—an increase in the depth or intensity of one factor is balanced by a relatively parallel increase in the depth or intensity of the other factor. However, theoretically speaking, what might one expect to happen if these two factors were to a considerable degree out of balance? It follows from our discussion that imbalance would lead to the very two types of hypnosis which White describes as active and passive. In the active subject, the active obedience factor predominates with considerably less emphasis upon the passive oblivion factor. In the passive subject, the imbalance is in reverse.

While White observed that *most* of his subjects could easily be classified as either active or passive, some other investigators have observed in their

[5] White shows personality test differences between active and passive subjects, which are consistent with their hypnotic responses.

own work that *few if any* subjects clearly fit either type. (See for example Friedlander and Sarbin, 1938.) In his investigation, White used the induction procedure standardized by Barry, MacKinnon, and Murray (1931). He comments further that he "sought to allay fears by adopting an unpretentious affiliative attitude and by putting the session in the most benign possible light." (p. 287). It is plausible that the great proportion of clearly-distinguishable active and passive subjects which emerged in White's sample is a function of his non-threatening and affiliative procedures. A more demanding mode of hypnotic procedures may allow subjects less selection in response patterns. But whether imbalance is a frequent or an infrequent occurrence, that it may occur *at least some of the time* makes clear the desirability of keeping the obedience and "sleep" factors of hypnotic depth conceptually distinct. Also there may be practical merit in trying to *measure* both of these dimensions of hypnotic depth separately.

Schilder and Kauders' Concept of Psychic Depth

Among Schilder and Kauders' many and discursive ideas on hypnosis is found a structural formulation of the ego in hypnosis which implies a multi-dimensional conception of hypnotic depth. Reference is made to a relationship in hypnosis between two portions of the total personality. The first is that portion which enters into suggestive rapport with the hypnotist. The second portion is described as the more highly developed, central portion of the ego, an ego-ideal. Only the first portion can be said to be hypnotized; the ego-ideal is never hypnotized. During hypnosis the central portion assumes the role of observer, continuously controlling and supervising the hypnotized portion.[8]

The authors derive from this conception a quality of hypnotic experience which may vary independently of the degree of "suggestibility." This special quality is the degree to which the central, nonhypnotized portion of the personality consents to the hypnotic procedures. Such degree of consent varies considerably.

> The central portions of the personality may assume various attitudes toward the hypnotized portions of the personality. The central personality may more or less consent to the procedure; or it may more or less assume the role of a spectator of hypnotic phenomena . . . [It] may also regard hypnosis as a game, with changing awareness of this fact. (p. 76).

Stated succinctly: the central ego-ideal may consent to the hypnotic procedures to a greater or lesser degree. At one extreme the controlling ego

[8] But this need not be in central awareness (p. 119).

regards the hypnosis essentially as a game, as play-acting. At the other extreme, the ego-ideal unreservedly consents to the hypnotic procedures.

This special quality or dimension of hypnotic experience Schilder and Kauders call the psychic depth of hypnosis. This terminology distinguishes it from the commonly held conception of depth, the degree of "suggestibility." The degree of "suggestibility" refers solely to the hypnotized portion of the personality and not at all to the relation between the two portions. Thus "suggestibility" may be extreme without the central ego being at all involved in the procedures, and conversely, the central ego may be profoundly involved in the procedures when "suggestibility" is slight. It is clear that Schilder and Kauders are here referring to two separable dimensions of hypnotic intensity: (1) the extent of "suggestibility" manifested by the hypnotized portion of the personality, and (2) the extent to which the unhypnotized portion becomes involved in the hypnotic procedures.[7]

Schilder and Kauders have not attempted to systematize their formulations, and thus it is difficult to tell just which aspects of their ideas are meant to refer to the psychic depth dimension and which are not. A clue is provided in the authors' presentation of an alternative manner of defining psychic depth. Psychic depth is described as the extent to which the hypnosis penetrates to the ego sphere; i.e., a reckoning of which proportion of the personality appertains to the hypnotic rapport and which to the ego center. But even with the most profound psychic depth, the central ego never loses its supervising function, and all regressions are only partial regressions. Thus we discover that the hypnotized portion may be considered in a regressed condition, but since the non-hypnotized portion is not regressed, it is best to speak of a partial regression.[8]

We must comprehend one further item of Schilder and Kauders' thinking on this matter before we can deduce what they would have ascribed to the psychic depth dimension had they chosen to be more systematic. The idea is expressed that even though psychic depth is a function of the relationship of the larger personality to the hypnotic rapport, psychic depth refers mainly to the hypnotic rapport. "The contact between hypnotist and hypnotized represents the basic hypnotic phenomenon. . . . The concept of psychic depth refers essentially and primarily to the hypnotic rapport."

Which other ideas presented by Schilder and Kauders would seem to fit these descriptions of the psychic depth dimension? When Schilder and

[7] Very shortly we shall object to the concept *depth of "suggestibility"* as being too vague, and shall substitute a more specific terminology.

[8] Gill and Brenman (1959) have recently outlined a similar conception. They refer to hypnosis as a regression of a sub-system within the ego, in the sense of Kris' concept of regression in the service of the ego. Gill and Brenman's subsystem is similar to Schilder and Kauders' hypnotized portion; regression in the service of the ego is similar to Schilder and Kauders' meaning of partial regression.

Kauders say that a large proportion of the central personality unreservedly consents to the hypnotic rapport, they are inevitably saying that the central personality is profoundly involved in the subject's interpersonal attachments to the person of the hypnotist. It is now clear that this dimension of psychic depth is the feature of hypnosis so often stressed by psychoanalytically-oriented theorists: the degree to which occurs a "transference" of archaic, infantile wish-fantasies of 'magical' powers onto the person of the hypnotist. It now remains only to recognize that since psychic depth and degree of "suggestibility" may vary separately, it is desirable to measure them separately. Schilder and Kauders' comment that in therapeutic hypnosis the psychic depth, rather than the "suggestibility" depth is of primary importance intimates that this distinction is vital.

A Recognition of Three Separate Dimensions

It now only remains to observe that White's two dimensions—eager obedience and oblivion—do not cover what Schilder and Kauders meant by psychic depth. White's two dimensions, however, do roughly cover Schilder and Kauders' depth of "suggestibility." Thus we are brought to the recognition of three separate dimensions of hypnotic depth, each of which appears capable of varying independently of the other two.

White's two dimensions of depth have already been fully embraced by the writer in his original twelve propositions. We spoke there of (a) depth of role-taking[9] and (b) depth of trance. In the present paper Schilder and Kauders' dimension of psychic depth will be incorporated into our propositional system as a third factor, which we will call the dimension of archaic involvement.

Nine Additional Propositions

13. Hypnotic depth may be defined as some complex of depth along three conceptually separate dimensions. These three dimensions are: (a) the dimension of hypnotic role-taking involvement, (b) the dimension of trance, and (c) the dimension of archaic involvement.

This proposition states in formal terms the three-factor theory of hypnotic depth discussed above. The next three propositions define each of the three factors individually.

14. Hypnotic role-taking involvement depth is the extent to which the complex of motivational strivings and cognitive structurings regarding the

[9] See proposition 14 for a revision of this concept.

role of hypnotized subject has sunk below the level of purely conscious compliance and volition, and has become nonconsciously directive.

In our initial series of propositions reference was made to *hypnotic role-taking* as one dimension of hypnotic depth. Since the publication of that earlier report, however, it became apparent that two quite different concepts were subsumed under that single rubric which we now feel bound to separate. A sharp distinction must now be drawn between the concepts: (a) hypnotic role-taking (as such) and (b) hypnotic role-taking involvement. Only the second of these two concepts do we consider a dimension of hypnotic depth.[10]

Hypnotic role-taking (as such) is the complex of motivational strivings and cognitive structurings to take as one's own the role of being a hypnotized subject. In order to be or become a hypnotized subject it is necessary that at some level an individual try to fulfill the requirements of what he perceives as the role of hypnotized subject. He must endeavor in a goal-directed, cognitively organized manner to conduct himself in consonance with his continuously evolving perception of the required hypnotic role. Responses to the directions of a hypnotist do not emerge in the subject's behavior without an adequate cognitive and motivational basis *within the subject*. The hypnotist's directions are effective because at some level these directions become translated into the subject's own cognitively structured strivings.

It is not the taking of the hypnotic role as such, however, which is a dimension of hypnotic depth. Rather, it is the extent to which whatever hypnotic role-taking there may be has become nonconsciously involved; i.e., the extent to which the hypnotic role-taking has sunk below the level or purely conscious compliance and volition and has become nonconsciously directive.

Hypnotic role-taking as such, regardless of its intensity, does not necessarily in itself imply any nonconscious involvement. Even intense hypnotic role-taking may often be an entirely conscious, deliberate, voluntary endeavor, with no nonconscious component.

When role-taking involvement deepens, a compulsive and involuntary quality derives from it. As a consequence of the progressive nonconscious involvement, the ongoing hypnotic experiences and behaviors become executed by the subject without the experience of conscious intention and often in defiance of it. The task of being a hypnotized subject has become not a consciously controlled choice.

15. Trance depth is the extent to which the usual generalized reality-orientation has faded into nonfunctional unawareness.

The concept of the generalized reality-orientation has already been expounded in our initial series of twelve propositions. It remains here only

[10] The earlier part of our propositional system will be revised eventually to account for this new distinction.

to identify trance depth as the progressive fading of the generalized reality-orientation, which leaves the ongoing contents of awareness increasingly more functionally isolated.

Trance, so defined, is not a strange mystic occurrence happening only in hypnosis, religious ecstasies, and such esoterica. Trance becomes seen as a daily, commonplace occurrence, a somewhat larger way of conceptualizing 'selective attention', and as familiar as the chaotic oblivion of the mind during sleep.[11]

It is useful here to draw an example to show how trance depth makes the distinction between reality and imagination progressively less relevant. The example selected is from the writer's own experience but it is hardly unique. The writer has failed to find anyone among his acquaintances who could not identify minor variants of this experience as also his own. The particular scene happens to pertain to sleep and dreaming, but these are mere stage-settings. Our chief character is the meaning of trance depth.

> I had been dreaming when the alarm-clock rang. Opening my eyes, I awakened suddenly. For the barest moment before the dream disappeared I was aware both of waking reality and the dream 'reality' together. I was forcefully struck by the realization of how unreal the dream 'reality' was when observed by my mostly awake mind.

In this experience the waking reality and the dream 'reality' existed together for a fleeting instant. Then, like a superimposed fade-out in a motion-picture sequence, the dream 'reality' quickly dissolved into unawareness and only the waking reality was left in view. Yet for that prior instant both the dream and the waking worlds existed entirely clear and intact together, superimposed yet unjoined. In that fleeting instant I could compare the two worlds, and a startling comparison it was: two universes, fundamentally disparate, with different logic, different boundaries. Chiefly startling was the recognition that my dream was but an unkempt, faded world when compared against the vivid, detailed, unbounded waking world. Imagery was meager, background was hardly painted in.

Nonetheless, during the dream itself the dream world had been an emotionally compelling world to dwell in. It was as vivid and as detailed as it needed to be in order to be totally 'real' to me. Only when compared against waking standards did it seem constricted. But, only beginning with the fleeting instant of superimposition could waking standards be applied. Throughout the dream the only 'reality' was the dream and the usual reality was utterly irrelevant and unavailable to it.

All this description illustrates that my ongoing phenomenal experience while asleep (the dream) was functionally isolated from the usual abstract schemata of waking life—which is our definition of profound trance depth.

[11] Trance may be facilitated by, but may occur independently of, the physiological processes attendant to sleep. Our remarks should not be viewed as any identification of trance (or hypnosis) with sleep.

It is clear that during this profound trance the ongoing contents of awareness had no need to mimic in every regard the actual occurrences. It was sufficient only that they possessed a 'reality' value at the moment of the experience.

For an individual with excellent visual imagery, a dream (or a hypnotically hallucinated scene) might very well visually mimic the actual scene. For an individual like myself with no visual imagery whatsoever in the waking state and rather meager visual imagery even in dreams. his best dream (or hypnotic hallucination) might only be a faint copy of the original when judged by waking standards. But for both types of individuals the dream (or hallucination) may be unequivocally 'real' at the moment of the experience—provided that trance is sufficiently deep.

16. Depth of archaic involvement is (a) the extent to which during hypnosis archaic object relationships are formed onto the person of the hypnotist; (b) the extent to which a special hypnotic "transference" relationship is formed onto the person of the hypnotist; (c) the extent to which the core of the subject's personality is involved in the hypnotic processes.

It may strike the reader as noteworthy that on the one hand we embrace fully a psychoanalytic concept, and yet, on the other hand, we do not *formally* mention the usual phrasings of this conception; i.e., unconscious fixation of the libido on the person of the hypnotizer by means of the masochistic component of the sexual instinct; nostalgic reversion to that phase of life when passive-receptive mastery represented the primary means of coping with the outside world; an appeal to that universal core which longs for wholesale abdication, unconditional obedience; security through participation in the limitless powers of the all-powerful parent: the evocation of archaic, infantile wish-fantasies regarding the parent-like 'magic' omnipotence of the hypnotist.

Our reluctance to embrace these phrasings is not because we are in disagreement with them. They entirely fit within the above definition of archaic involvement. We suspect, however, that profound archaic involvement may occur with somewhat different dynamic constellations than the above notion of masochistic surrender implies. Empirical clarification is needed, and until it is available we feel it best to leave our formal statement somewhat uncommitted.

17. When depth is profound along all three dimensions, a situation exists with the following characteristics: (a) the role-enactments have permeated down to nonconscious levels; (b) the hypnotic happenings become phenomenologically the only possible 'reality' for the moment; (c) intense, archaic object relations are formed onto the person of the hypnotist; (d) in general, all classic hypnotic phenomena can be produced.

When depth is profound along all three dimensions, the cognitively structured strivings to take the required hypnotic role have sunk below the

conscious level and become nonconsciously directive and persistent. From the standpoint of phenomenal awareness the resulting strivings are totally compelling and involuntary. In the extreme the usual background of awareness has slipped so far away that even the little disembodied self off in the psychologic distance—which somewhat less entranced subjects often report as watching from afar their own hypnotic behavior—has itself faded out of the bounds of conscious awareness. The hypnotic experiences are isolated unto themselves and thus by default become phenomenally the total 'reality' for the time. The larger personality is profoundly involved with the hypnotic performances, satisfying archaic longings and bestowing an importance, vitality, and energetic meaning upon the hypnotic processes.

When depth is profound along all three dimensions, it is not possible to disentangle clearly the dimensions as conceptually separable entities. Whenever depth is less than profound, but of roughly equivalent depth along all three dimensions, it is equally impossible to disentangle clearly the dimensions. If such parallel variation were always the case, moreover, there would be no merit in conceiving of more than one dimension. The three would most profitably merge in our thinking as but three ways of conceptualizing the same psychologic totality; as different aspects of—or frames of reference for viewing this single dimension. It is only as we observe instances of gross imbalance among them that the need to conceptualize separate dimensions becomes apparent. The next proposition formally recognizes the conditions and effects of imbalance.

18. When depth along the three dimensions is not in relative balance the resultant hypnosis will have characteristics corresponding to the existing imbalanced configuration.

The appearance of hypnosis when the configuration of depth is imbalanced is a question which is most meaningful when considered against the problem of how to measure the three hypnotic dimensions separately. The diagnosis or measurement of the three hypnotic depths is, however, too complex a problem to be dealt with here, and will be the topic of a later report. In this paper we wish merely to report a few examples in order to clarify the preceding proposition. It should be understood of course that estimations of depth from any one hypnotic item, from subjects' reports, and without taking account of the entire context of events can hardly be entirely reliable, but it illustrates the general meaning of variable configurations. Three examples are cited, each referring to the hallucination item in a widely used objective depth rating scale.[12]

> Example I. "I knew very well there wasn't a mosquito in the room but when I was told it would bother me I felt an overpowering need to act as if it were. But I didn't feel it and I didn't hear it."

[12] Item 9, Form B, *Stanford Hypnotic Susceptibility Scale,* Weitzenhoffer and Hilgard (1959).

From this subjective report three tentative estimates regarding depth and imagery can be drawn: (1) the subject's feeling of strong compulsion to act as if the mosquito were bothering him suggests that hypnotic role-taking involvement was quite deep; (2) the subject's clear awareness that there really was no mosquito present would suggest that trance was far less deep; (3) his neither feeling nor hearing the mosquito would suggest at best meager touch and auditory imagery representation. The report yields no clue, however, about the depth of archaic involvement.

The second report suggests a somewhat different configuration of depth.

> Example II. "I knew you wanted me to feel the mosquito. I tried hard to do it for you but I felt guilty because I couldn't imagine it too well. I acted as if I felt it though, and I felt rather upset that I really wasn't able to feel it."

Four tentative estimates of depth and imagery can be made: (1) the twin statements, "I tried hard but I just couldn't imagine" and "I acted as if" have the ring of voluntary deliberation and thus suggest that hypnotic role-taking involvement was not very deep; (2) the subject's awareness of the 'true' state of affairs suggests a rather slight trance depth if any; (3) imagery representation also appears to be rather slight, though possibly somewhat greater than in the first example; (4) the subject's disquietude, guilt, and feelings of wanting to please the hypnotist suggest at least moderate archaic involvement.

The third report implies still another configuration.

> Example III. "When you told me there was a mosquito I heard him right away and felt him buzzing around my face. Looking back at it now the buzzing wasn't really very clear, but at the time it didn't occur to me that there wasn't a real mosquito."

Three tentative estimates of depth and imagery can be made: (1) the subject's immediate sensory perception of the mosquito without any feeling of voluntarily trying to do so suggests that hypnotic role-taking involvement was deep; (2) since the buzz was not really very clear when later judged by waking standards it appears that auditory imagery was only moderate; (3) the subject's statement that it did not occur to him to doubt the reality of the mosquito at the moment of the experience would suggest that trance was quite deep. The report itself yields no basis, however, for an estimate of archaic involvement depth.

It should be obvious from even these three examples that all combinations of imbalance are possible: depth may be light along two of the dimensions but deep along the third; depth along one dimension may be light, another medium, and the third deep; two may be light and one medium; and so forth.

It is unnecessary to describe the consequences of all configurations of depth in propositional form since a few configurations of greatest theoretical

interest carry the underlying meaning of them all. The following three propositions depict the configurations where depth is profound along two of the three dimensions but superficial (or light) along the third.

19. When both hypnotic role-taking involvement and archaic involvement are deep but trance is superficial, a situation exists with the following characteristics: (a) the hypnotic role-enactments have permeated down to nonconscious levels; (b) intense, archaic object relations are formed onto the person of the hypnotist; (c) in general all classic hypnotic phenomena can be produced; but (d) the hypnotic happenings occur along with a relatively intact awareness within the phenomenal field of the more usual state of affairs.

A small percentage of well-trained hypnotic subjects can learn to reintegrate a generalized alertness to outer reality during deep hypnosis so that they have immediate and full availability of critical, waking standards of judgment and yet remain deeply hypnotized along the dimensions of hypnotic role-taking involvement and archaic involvement. These individuals, who are often called active somnambulists, can open their eyes, walk about, talk and appear fully alert and attuned to the real world, yet at the same time remain keenly responsive to the hypnotist and produce all classic hypnotic phenomena except those which require profound trance as an intrinsic component.[13]

These individuals are not to be confused with those less active somnambulists who still remain in at least medium trance. The latter may open their eyes and talk, but there is a glassy-eyed perplexed quality to their stare; alertness is decreased as is concern and contact with the usual generalized reality.

The fully active somnambulist, although still profoundly responsive to the hypnotist, is not entranced at all nor out of tune with any feature of abstractive appraisal. He may, for example, be vividly hallucinating an object while at the same time describing it as an hallucination and introspecting upon his own mental processes in abstractive terms.

20. When both trance and archaic involvement are deep but hypnotic role-taking involvement is superficial, a situation exists with the following characteristics: (a) the hypnotic happenings become phenomenologically the only possible 'reality' for the moment; (b) intense, archaic object relations are formed onto the person of the hypnotist; (c) all classic hypnotic phenomena may emerge spontaneously; but (d) the subject is generally disinclined to follow hetero-suggestions.

The importance of this configuration of factors can be best illustrated by a close evaluation of the processes which Gill and Brenman (1959) have called the induction phase of hypnosis. These authors have drawn a sharp distinction between (a) the induction phase of hypnosis and (b)

[13] Such as age-regression or time distortion.

the established state itself. Our dimensional analysis would suggest that this distinction derives from particular methods of hypnotic induction and is not an invariant accompaniment of hypnotizing.

In Gill and Brenman's theory the induction phase of hypnosis is the bringing about of a regression, a regressive *movement*. The hypnotic state itself is an established regression in Kris' sense of a regression in the service of the ego. In the established state, a regressed sub-system of the ego is set up within the overall ego. This sub-system is an organized structure; during the induction phase this structure has not yet been built. The induction phase is characterized by the mutual operation of two factors: (1) a sensori-motor and ideational deprivation leading to alteration in ego-functioning, and (2) the stimulation of an archaic object relationship onto the hypnotist. The regressive movement can be set into motion by either of these two factors, and once initiated the other factor inexorably develops. The induction phase is further characterized by a freer expression of repressed affect and ideas, the availability of motility to repressed impulses, the appearance and disappearance of hysterical phenomena, spontaneous age-regression, changes in body experience, feelings of depersonalization, and so forth. The authors report that such spontaneous occurrences almost never happen, however, once the established hypnotic state itself is produced.

Gill and Brenman's two intertwined induction phase factors correspond to two of our three dimensions of hypnotic depth. The first factor (sensori-motor and ideational deprivation leading to alterations in ego functioning) is our trance dimension. The second factor (stimulation of an archaic object relationship onto the hypnotist) is our archaic involvement dimension. Also, when the authors view the established hypnotic state as a regressed sub-system within the overall ego, they are referring in psychoanalytic terminology to what we have called profound hypnotic role-taking involvement; i.e., the complex of motivational strivings and cognitive structurings to be a hypnotized subject has become nonconsciously directive.

Gill and Brenman's descriptions of their modal induction techniques show their tendency to use induction strategies which emphasize both trance and archaic involvement but which place little weight at first upon active hypnotic role-enactments. Only later, when trance and archaic involvement are both quite extensive, is emphasis placed upon deepening hypnotic role-taking involvement. The spontaneous emergence of primary process materials which Gill and Brenman observe during their induction phase is entirely consistent with a configuration of (a) extensive trance, (b) extensive archaic involvement, (but c) little hypnotic role-taking as such and little of its involvement depth. In the induction strategies which we tend to favor, much more emphasis is placed upon hypnotic role-taking and hypnotic role-taking involvement from the very beginning. Consequently, there is little occasion to observe a dichotomy between induc-

tion phase and established state. In other words, our dimensional analysis suggests that, given induction strategies with considerable emphasis upon hypnotic role-taking and hypnotic role-taking involvement from the very beginning, the kind of distinction between induction phase and established state as described by Gill and Brenman will not occur.

21. When both hypnotic role-taking involvement and trance are deep but archaic involvement is superficial, a situation exists with the following characteristics: (a) the strivings to take the hypnotic role have permeated down to nonconscious levels; (b) the hypnotic happenings become phenomenologically the only possible 'reality' for the moment; (c) in general all classic hypnotic phenomena can be produced; but (d) the hypnosis is relatively superficial to the core of the subject's personality

Most clinicians have such little opportunity to observe profound hypnosis where there is minimal archaic involvement that it is doubtful they would easily believe that such a state of affairs might exist. The therapeutic process itself obliges a reaching down into the core issues of the patient's personality. Even when engaged in experimentation instead of therapy, the clinician's habitual manner usually tends to initiate considerable archaic involvement.[14]

It is only the psychological researcher (especially when working in an academic setting) who might regularly see profound hypnoses with minimal archaic involvement. The experimentalist often maintains a greater psychological distance from his subject than does the clinician (or the stage-hypnotist). There is usually the implicit understanding that some larger scientific question is under test; often there is little requirement that the subject enter into the hypnotic experiences in a deeply personal fashion. Usually it is understood that issues dealing with the core of the subject's personality are to be avoided scrupulously. The researcher's manner, moreover, often belies mysticism and power fantasies. Sometimes the subject has never before seen or heard about the particular hypnotist who may work with him during a particular session. The routine of experimental method may introduce an added note of impersonality; the experimenter may even be slightly bored or otherwise mentally occupied. With sufficiently capable subjects such happenings need not interfere with the successful attainment of the most profound depths of trance and role-taking involvement. But under these circumstances there is far less impetus for archaic involvement to become profound.

How do otherwise profound hypnoses look when archaic involvement is minimal? All classic hypnotic phenomena are readily produced, but the fireworks (evoked primitive meanings) are lacking. The subject puts his whole role-taking 'heart' into it but his archaic involvement 'soul' is much

[14] The stage-hypnotist's manner has similar results but for different reasons. His stress on mysticism and omnipotence tends to evoke infantile fantasies of magical power and dependency.

less entangled. Fewer personal interpretations occur; less emotive, dynamic materials emerge. The subject is fully cooperative but the hypnotic happenings do not strike him to the core. His relationship to the hypnotist has not become infused with an unusual importance and wish to please. Whether classic hypnotic phenomena—though outwardly looking much the same—are really subtly different when archaic involvement is minimal is a vitally important theoretical and practical question demanding empirical clarification. Resolution of much of the dispute in the hypnotic literature between the clinicians and the experimentalists may hinge on answers to this question.

22. *Interactions and interrelationships may occur among the dimensions.* Our recognition of separate dimensions does not at all deny that usually potent interactions and interrelationships occur among the dimensions. For example, the deeper the trance, the easier it is for archaic contents and modes of functioning to flow into the background of awareness to orient experiences. Thus the deeper the trance the more easily available will be modes of functioning for forming archaic object relationships. The experienced hypnotist will often try to fuse and intertwine all three dimensions into one tangled skein– using trance as a wedge to help establish his authority and parent-like image; archaic involvement as a wedge to help increase motivations and further relax generalized alertness; role-taking involvement as a wedge to achieve greater unity with more primitive modes of interpersonal relationship and to further selectively focus attention.

Not all interactions and interrelationships among the dimensions are so productive of greater mutual depth, however. Schilder and Kauders, for example, observe that too much "sleep-consciousness" (trance) prevents "suggestibility" (in this context, role-taking and role-taking involvement), and vice versa. Too profound an infusion of archaic interpersonal meanings into the hypnotic relationship, moreover, may very well interfere with accuracy in comprehending the hypnotist's directions. Experimental investigation is needed to help clarify the exact conditions of mutual aid or disharmony among the dimensions.

Summary

Nine additional formal propositions are presented which extend the writer's earlier presentation of a dual-factor theory of hypnosis to include a third factor, archaic involvement, a feature of hypnosis often stressed by psychoanalytically-oriented theorists. Although interactions and interrelationships usually occur among these three factors, the three are viewed as conceptually separate; i.e., the depth of each may vary independently. Many ramifications of these views are presented. The theory is most properly seen as a synthesis of the enduring insights embedded in many prior theories

of hypnosis. In a later paper the problem of measuring depth along the three dimensions will be dealt with directly.

IV. ERICKSON'S APPROACH

1

An Experimental Investigation of the Hypnotic Subject's Apparent Ability to Become Unaware of Stimuli



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The experimental study of the unresponsiveness of deeply hypnotized subjects to stimuli ordinarily effective and, conversely, their responsiveness to suggested but not real stimuli is a most difficult problem. Aside from the complexity of such phenomena, the subject's necessary awareness and understanding of what he is or is not to do in such experimentation raises the important question: In what part are the experimental results to be attributed to actual experiential processes of behavior within the subject, and in what part are they indicative only of the subject's full coöperation in manifesting that type of behavior proper only to the actual achievement of the suggested task?

For example, a coöperative subject who accepts the hypnotic task of becoming unaware of the presence of a third person may presumably become actually unaware of that third person, or despite an awareness, he may behave in strict accordance with a lack of such awareness. Thus, in one instance his behavior seemingly is that of no response, and, in the other, that of successfully inhibited responses. But this is an oversimplification of the problem. Hence, for lack of more definitive language, examples of comparable behavior from common experience will be cited for their pertinency and because they illustrate various important considerations for an adequate understanding of this total problem.

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The first of these relates to a person reading a book who may falsely believe himself to be alone. While so absorbed, he may respond to a gentle touch as if it were an itch and react adequately to this understanding of the stimulation by scratching behavior. His responsiveness to the stimulus in no way destroys or alters his unawareness of the presence of another person. Or he may behave as if annoyed by a fly, thus recognizing the external character of the stimulation but still making a mistaken response to it. Such stimulation may be repeated until its persistent recurrence compels another type of response. If this new response leads to an awareness of the presence of another, the startle or fright reaction may be regarded as an outward culmination of the experiential process of developing that awareness.

A second example is that of the tired mother who sleeps soundly despite disturbing noises. Nevertheless, at the slightest cry from her baby she rouses at once. Thus, in relation to certain types of stimuli she is unusually alert despite her unresponsiveness to other and even similar stimuli.

A third example is that of the ability of jute mill workers and boiler factory employees to carry on conversations in relatively normal tones of voice despite the shop din The newcomer in such a situation, as personal experience has repeatedly disclosed, is often unable to hear clearly even loud shouting. With experience, however, one can learn to disregard the disturbing noises and to carry on conversations without undue effort and strain.

Discussion of these examples is difficult. Not only does their complexity present serious obstacles to investigative study, but any awareness by the subject of an experimental approach to such behavior would alter completely the situation for him and militate against reliable and informative findings. Thus, one cannot determine how a subject would behave when he mistakenly believes he is alone if the subject knows that he is mistaken in that belief. Nor can a subject's lowered thresholds for certain stimuli be tested satisfactorily as such if he expects to be tested for alertness to those special stimuli. Indeed, it is axiomatic that the subject in an experimental situation in which he knows what is expected of him tends to behave in accord with the experimental demands. In such a situation any findings made are the result of both the experimental procedure and the subject's readiness to yield such findings.

Hence, a naturalistic as opposed to a frank experimental laboratory approach is essential to a study of various psychological phenomena. Especially is this true in relation to many hypnotic phenomena wherein a subject's mere readiness to behave in a certain way may yield the same outward objective findings as would result from actual experiential processes of behavior. All the more so is the naturalistic approach indicated when the introduction of experimental methods or any awareness that behavior is

being systematically studied may lead the subject to coöperate for the purposes of giving the "scientific" results apparently desired.

In this account it is proposed to report the procedures and results obtained in investigating certain hypnotic phenomena often described categorically as "selective sensory anaesthesias." In all probability, such a descriptive term is not necessarily applicable since, as one subject aptly declared, "It is not a question of being unaware of stimuli, but, rather, a giving of all attention to certain stimuli or to certain aspects of a stimulus complex without other stimuli entering into the situation." The pertinency of this statement is readily appreciated in relation to the first example from common experience cited above.

The investigative procedure used in this study was a combination of both the naturalistic and the direct experimental approaches carried out in an informal social setting. So far as the subject was concerned the purposes to be served were obvious and understandable and only related to the social situation, and full cooperation was readily given. However, the subject did not know that the apparent purposes were only secondary to unrealized and actually experimental objectives. Indeed, in the second account the experimenter himself did not realize that a second behavioral development was taking place until the results disclosed that fact, following which there was a simple utilization of the spontaneous developments.

In both accounts the experimental objective was the investigation of the hypnotic subject's ability to become unresponsive or unaware, at both visual and auditory levels, of the presence of selected persons at a social gathering. In the first report the subject was given full instructions to become unaware of a certain person and after these suggestions had been repeated adequately and what was considered a sufficient amount of time had elapsed, they were intentionally made inclusive of a second person. So far as the subject was concerned the object in mind was a demonstration for a social group of his unawareness of the presence of those two people. The actual experimental purpose was to contrast his behavior in response to each of those persons and to determine if the element of time itself played a significant role in the effectiveness with which he performed his task.

In the second report, the original purpose was merely a demonstration in a social situation of somnambulistic behavior. Fortunately, a chance incident so altered the demonstration situation that, contrary to all suggestions given to the subject, an unexpected demonstration was given of "selective deafness" and "selective blindness."

As a necessary preliminary to the presentation of these reports, a short discussion will be offered of a serious misconception of hypnosis frequently encountered even among those who have had extensive experience. This misconception, briefly stated, is that hypnosis in some peculiar undefined

fashion necessarily deprives a subject of his natural abilities for responsive, self-expressive and aggressive behavior, and limits and restricts him to the rôle of a purely passive and receptive instrument of the hypnotist.

The fact that receptiveness and passivity can readily be used to induce those processes of behavior that result in a trance state does not signify that they constitute essential criteria of the trance condition itself. Rather, there should be recognition of the fact that the general tendency of the hypnotic subject to be passive and receptive is simply expressive of the suggestibility of the hypnotic subject and hence, a direct result of the suggestions employed to induce hypnosis and not a function of the hypnotic state.

Nevertheless, the mistaken assumption is often made that the hypnotic subject must display the same passive receptive behavior when in a trance that he displayed in the process of going into the trance. The fact that the hypnotic subject's psychological state of awareness has been altered constitutes no logical barrier to any form of self-expressive behavior within that general frame of reference, and experience discloses that, in addition to his usual abilities, the hypnotic subject is often capable of behavior ordinarily impossible for him.

In the following experiments utilization has been made of the ability of hypnotic subjects to behave in full accord with their natural capacities. This was accomplished by a training procedure of first hypnotizing them deeply by a prolonged laborious technique that did not demand immediate results. Then situations were devised in which the subjects had ample time and opportunity to discover and to develop their abilities to respond to the demands made of them with as little interference from the hypnotist as possible. After such preliminary training in hypnosis, experiments like the following can be conducted with relative ease.

In accord with the informal social situation in which they were conducted, both experiments will be reported in narrative form to permit greater comprehensiveness.

Experiment No. I

During the course of a demonstration of hypnotic phenomena before a medically trained group the question of "negative hallucinations," that is, the inability to perceive actual stimuli, was raised privately to the hypnotist. After some discussion out of the subject's hearing concerning the validity of such phenomena, it was decided to conduct an experiment for the group in the form of a simple demonstration.

Accordingly, the subject was deeply hypnotized and a somnambulistic state induced. She was instructed to look about the room carefully and to become fully aware of those present. After she had scrutinized everyone carefully and identified them by name she was told that shortly she would

discover that Dr. *A* had left. Indeed, it was emphasized that soon she would realize that she had been mistaken in thinking that *A* had been present. Finally, she was told that she would really know that *A* had originally intended to be present but that he had failed to arrive. This fact, it was explained, would account for her original impression that he had been present. These instructions were systematically repeated in various forms with increasing emphasis upon her full realization that *A* had not been there and that, in all probability, he would not be able to appear.

In the meanwhile, acting upon instruction, *A* withdrew quietly and unobtrusively into the background where he remained out of range of the subject's vision.

When it seemed that the subject understood fully the suggestions given to her she was kept busy with various attention-absorbing tasks for about 20 minutes. She was then reminded in a casual fashion that *A* had originally intended to be present but that he had been unable to come and would probably not be able to attend at all. When she nodded in agreement, the original series of suggestions was repeated but this time in connection with Dr. *B*. When the second series had been fully impressed upon her she was again given attention-absorbing tasks for two or three minutes while *B*, even as had *A*, remained quietly in the background. Then the same casual general reminder previously made in relation to *A* was repeated in connection with *B*.

Thus, approximately 25 minutes and 5 minutes elapsed from the giving of the suggestions relating respectively to *A* and to *B*.

Thereupon her attention was directed to the group and she was asked to identify those present. This she did readily, omitting, however, both *A* and *B*. The group was then told quietly to challenge her statements and to break down her exclusion of those two gentlemen.

Very shortly it became apparent that there was a marked difference in her behavior in relation to *A* and to *B*. She was apparently completely unaware of *A*'s presence and entirely at ease in offering the false explanation that had been given her nor did she show any evidence that his absence could be regarded as a debatable issue. In no way did she disclose any awareness of his presence.

In relation to *B*, however, her behavior was decidedly different. There were definite avoidance responses, evidences of confusion and blocking, and she seemed to be uncertain about the situation although emphatic in her assertion that *B* was not present It was noted that, when told to look in his direction, there was a marked tendency to glance aside, or in looking slowly about the room, to skip *B* by a quick glance past him. None of this behavior was apparent in relation to *A*.

Upon a signal, both *A* and *B* joined in the general conversation. To *A*'s voice no response of any sort could be detected by the group. To *B*'s voice many partial responses were made, such as a slight involuntary

turn of her head, puzzled looks, a spontaneous statement that she thought she heard someone speaking, and that she felt uncomfortable, that is, as if all were not right. She resisted successfully the efforts of the group to break down her expressed conviction that *B* was not there, but her behavior was suggestive of resistance to the development of an awareness, or of an inhibition of responses.

In connection with *A*, however, she displayed no need to resist since, for her, he simply was not there. In other words there seemed to be neither responses nor need to inhibit responses.

After about 10 minutes of such investigation the subject was again busied with various attention-absorbing tasks for 15 or 20 minutes. Then again the group was told to investigate the situation.

This time there was found to be no difference in her behavior in relation to both *A* and *B*. So far as could be determined, she made no response of any sort to their presence. There was no avoidance behavior, no uncertainty, and no evidence of mental strain. She readily recalled the previous questioning and related that at that time she had had an uncomfortable feeling that *B* might have arrived without her awareness and that this feeling had made her uneasy about the questioning and uncertain in her replies. She also recalled having thought that she had heard his voice but she attributed this to her general state of confusion caused by her conviction that he was not there and a feeling that he might be secretly present.

When *A* and *B* joined in the questioning and discussion, none of the previous partial responses to *B*'s voice were made. Her behavior was as if they were actually absent.

Upon signals both *A* and *B* lifted her arm and shook hands with her. She became aware of this at once, looked down at her hand each time with an expression of amusement and interest. Questioned by the group about this she explained with simple earnestness that in all probability she had been given some post-hypnotic cue which had caused her unconsciously to respond as if she were shaking hands with someone. Her only uncertainty was whether or not there had been an actual movement of her hand or just an hallucinatory experience.

Promptly both *A* and *B* shook her hand again and she explained that it was a genuine motor and visual experience even though the tactile sensations were hallucinatory since there was nothing touching her hand. In responding to the questions of the group, she made no effort to look around the body of either *A* or *B* but seemed to be looking through them. Questioning by the group elicited her understanding that a nodding of my head, actually a signal to *A* and *B*, was a signal for her to undergo some planned hypnotic experience, which she had now discovered to be the hallucination of shaking hands with someone.

(As a parenthetical insert in elaboration of this point, an account may be given of results obtained from a number of other subjects. Instructed to remember carefully that a member of the audience was sitting in a

certain chair, the subject would thereafter continue to see that person in the specified chair despite a change of position. The subject, however, would readily detect the alteration in the location of that person's voice resulting from the change of position. Usually the subject responds to this situation by scrutinizing the chair and the source of the voice alternately. Several outcomes are possible. The subject may rationalize the altered location of the voice as an inexplicable phenomenon with a failure to see the person in the new position and with a substitution of a memory image for the actual person. Or the subject may discover that there has been a change of seat and will call the hypnotist's attention to the matter so that further instruction may be given. A third and not infrequent development for the subject is to discover the person sitting in both places and become confused as to which is the real person. In subjects trained in psychology or psychiatry, this becomes an interesting phenomenon to observe. The usual procedure followed by the subject is to suggest to himself that the person is to make some movement or to perform some act. The visual image does, and the real person does not. Occasionally, the subject merely studies the two figures to see which one tends to fade and blur and this is recognized as the visual image.)

The subject was instructed to perform aloud simple sums in addition, the numbers to be suggested by the members of the group. After a dozen such additions had been rapidly called to her, both *A* and *B* separately called numbers to her. No response of any sort could be detected. She merely sat quietly and expectantly, waiting for those members of the group who were present for her to call problems for her. Several repetitions of this failed to elicit responses to *A* or *B*. Nor did the measure of having *A* and *B* call the same and other numbers in unison with the others serve to confuse her. Apparently she was selectively deaf to both of them.

Advantage was taken of a telephone call to tell her that both *A* and *B* would arrive in exactly 5 minutes and her attention was directed to a clock. In about 5 minutes she was observed to turn her head toward the door and to go through the behavior of watching somebody enter the room. Close observation of her eyeballs disclosed her to be watching apparently hallucinated figures entering the room and to be glancing over the available chairs. She was observed to go through the process of letting one select the chair where *A* was really sitting and the other select the chair where *B* was sitting. She greeted them courteously and then her eye movements disclosed her to be watching them sit down in the selected chairs. Thereafter, both were fully present for her.

(A second digression is necessary in this regard. Approximately 50 persons, most of whom had seen this type of hypnotic behavior but who had not been hypnotized have been asked to duplicate it in detail or to perform a comparable act. One simple procedure easily described is as follows: The unhypnotized experimental subject is instructed to behave as if a selected third person actually present is not present and after

he feels confident of his ability in this pretense, he is instructed to hallucinate or fantasy a picture of that person hanging on the wall. The unhypnotized subject goes through a mental process of hanging a fantasied picture with regard for good spacing on a wall usually remote from the third person. There is a definite quality of avoidance of the real object in his behavior.

The hypnotized subject, however, given the same task, hangs the hallucinatory picture on the wall in close proximity to the person presumably absent and with a disregard for proper spacing. Usually, the hypnotic subject recognizes that the picture should be hung elsewhere with regard to proper arrangement but explains that for some inexplicable reason it seems best to put the picture where he has placed it, actually in proximity to the supposedly absent person. Thus, in contrast to the unhypnotized subject, a utilization of the real object rather than an avoidance response is made.)

Subsequently the subject was questioned under hypnosis about these experiences. She explained that, in relation to *A* she had been convinced at first that he was present. This had been followed by a state of mental confusion and uncertainty about his presence. Shortly this confusion had resolved itself into a realization that *A* was not present but that she had only expected him to be there. While these ideas were developing she had recalled identifying someone as *A* and this had caused her some feeling of embarrassment and made her hope that no offense had been taken. This feeling of emotional distress had made her wish that the author would proceed with whatever plans he might have.

Then, when suggestions were given her about *B*, a similar train of events began to develop but while she was still confused and uncertain about him the group began to question her. This had added to her confusion and uncertainty and had made her most uncomfortable, a fact she had labored to conceal. The questioning about *A* she had not been able to understand since it seemed to be out of place and without basis since she was certain no one could know about her previous misunderstandings.

Following the interlude in which she had been asked to read aloud, this general confusion about *B* and her vague impressions of having heard his voice disappeared and she found herself at a loss to understand the purposes of the group in questioning her further. Not until the "hallucinatory" handshaking occurred did she realize that a hypnotic demonstration was occurring. With that understanding she had developed a mild passive interest in the situation and had tried to meet whatever demands were made upon her as adequately as possible since this understanding explained fully her previous states of confusion.

No effort was made to correct these misinterpretations of the total situation. Rather, it was left open on the possibility of future experimental developments.

Summary

This account may be summarized best by itemizing in chronological order the experimental developments

1 A deeply hypnotized subject in a somnambulistic trance was instructed to become unaware of the presence of a selected person.

2 After proper suggestions to this end, a period of 20 minutes was allowed to elapse as a measure of permitting the subject to develop that "mental set" or the neuro- and psycho-physiological processes necessary to such a state of unawareness

3 The subject was instructed as previously to become unaware of a second person

4 A period of time considered too brief for the development of a "mental set" was allowed to elapse

5 Tests were made for behavioral responses in relation to the two selected persons

6 The subject showed no responses to the first person but made many partial responses and avoidance reactions in relation to the second person

7 A sufficient period of time was allowed to elapse for the development of the proper mental set" in relation to the second person

8 Testing disclosed the subject to be equally unresponsive to and unaware of both persons at visual and auditory levels

9 Tactile stimulation by the selected two persons was misinterpreted as hallucinatory experiences possibly deriving from post-hypnotic cues

10 The subject hallucinated the arrival of the selected persons and reestablished contact with them

11 Subsequent questioning of the subject under hypnosis disclosed a persistence of an understanding of the total situation in full accord with the hypnotic suggestions and not in accord with the actual facts

Experiment No. II

Before a group of associates in the author's office a well trained subject was hypnotized deeply and given instructions to develop the somnambulistic state Additionally, he was told that upon the development of this somnambulistic state he was to establish full contact with the group and to act in every detail of his behavior as if he were actually wide awake. Thus, by his behavior, conversation and participation in group activities he was to convince everybody that he was unquestionably wide awake and not in a hypnotic trance. However, he was told that, when questioned directly as to whether or not he was in the trance, he was to reply honestly, readily and directly.

After these suggestions had been repeated several times to insure his full understanding and after he had been given about 20 minutes while

he was sleeping deeply in which to mull them over and to develop what may conveniently be called the "mental set" essential to their performance, he was told to proceed with his task.

The subject responded by lifting his head, yawning, stretching and remarking that he felt rather sleepy, that apparently it was up to him to be a bit more lively.

This subject had a very charming personality, was a pleasing conversationalist, alert, responsive, and possessed of good wit and high intelligence. Immediately one of the group asked him if he was asleep to which the subject replied:

> Yes, I'm very much asleep, sound asleep in a trance state but you'll never be able to detect it. In fact, you're going to have a hard time proving in your own mind that I am asleep but if you wish you can ask Dr. Erickson or you can ask me and we will both tell you the truth, which is, that I am in a deep hypnotic trance. Would you like to talk to me and find out how a hypnotized subject can talk and act even though asleep?

For about an hour the subject kept the group busy asking questions or responding to questions put to him and the range of conversation was very wide. Books were discussed, the typewriter in the office was used by the subject upon request, jokes were told and the subject's alertness and responsiveness to everything occurring in the office was repeatedly demonstrated by him. Nevertheless, at every straightforward question about his status, the subject replied with the simple factual statement that he was in a trance, and, to the experienced hypnotist, there were many indirect evidences of this fact. Usually when this question was asked of him, after making his straightforward reply, the subject would make his questioner the butt of jesting remarks. At the end of an hour a medically trained colleague, Dr. *C.*, who had had no experience with hypnosis stepped into the office, remarking that he had heard the sound of laughter and conversation and he wanted to know if a hypnotic demonstration was taking place. The subject responded at once by asking *C* if it seemed to him that anybody appeared to be hypnotized. *C* answered in the negative but added that he hoped he might have the chance to see hypnosis. To this the subject replied with the ambiguous statement that his best opportunity was to observe what was going on since the afternoon's plans called for nothing more than the present activities. Following this the subject and *C* engaged in a casual conversation on various items and shortly *C* left. The group then continued as they had before. Presently a second visitor, Dr. *D.*, entered the office. This doctor more or less regularly dropped in on Saturday afternoons, a fact well known to the subject and, hence, he was not a totally unexpected visitor. As he entered the room and noted the group, he promptly asked if the author were demonstrating hypnosis. An affirmative reply was given and the subject suggested, since he knew *D* very well, that *D* look over

the group and see if he could tell who might be a good hypnotic subject. *D* promptly replied that he knew the subject himself was well trained and that two others in the group had also been hypnotic subjects, and, therefore, that it might be any one of the three or for that matter someone else in the group. One of the others then spoke up and asked the visitor if he thought anybody in the room was in a hypnotic trance. Since *D* had done some hypnosis himself and had often seen some of the author's subjects in somnambulistic trances, he glanced carefully about the room, sizing up each individual present, verbalizing comments as he scrutinized them and carrying on a casual conversation, asking general questions about how long the group had been gathered in the room, what work they had been engaged in during the morning and similar items. Finally he remarked that if he were pressed to venture a guess he would select the subject as the most likely choice for the afternoon's work and that he felt that this choice of possible subjects was probably in a somnambulistic state at the actual moment. Immediately the subject asked him to justify his guess. *D*'s explanation was that there were certain rigidities in the subject's movements, a loss of associated movements, some lag between his speech and his gestures and head movements and a marked pupillary dilation. He also explained that the subject moved his arms and walked very much as if he were in a trance state. As *D* made these remarks, the subject slowly flushed, turned to the author apologetically and expressed his regret that he had failed to obey instructions completely. Then turning to *D*, he confirmed *D*'s guess and admitted that he was in a somnambulistic state. The subject was comforted about having betrayed himself by the author's pointing out that *D*'s own experience had enabled him to recognize certain evidences of the trance state ordinarily overlooked.

After a brief chat *D* left and the group then busied itself with attempts to detect alterations in the subject's motor behavior. The two other subjects soon demonstrated an ability to single out some of these behavioral alterations but the rest of the group experienced difficulty. Furthermore, as this investigation continued, the subject became increasingly successful in simulating the motor behavior of a person fully awake. Eventually, he succeeded in interesting the group in a general conversation and this was allowed to drift along ordinary social channels.

Unexpectedly, a third visitor, Dr. *E*., from out of town and whom the subject did not know, dropped in for a brief visit while on his way to Detroit. This arrival was totally unexpected by the author. Hence, it differed markedly from the visits of *C* and *D* inasmuch as they constituted something entirely within the usual course of events. For this reason, their visits could be regarded as legitimate extensions of the total office situation. The visit by *E* belonged to another and totally different category of events and could not be expected to occur. It was entirely outside the range of the situation the subject had been asked to meet. As this visitor approached

the office door, which had been left open, his arrival was noted and he was immediately signalled to be quiet and to wait outside the door and to keep out of visual range of the others present. Watching for opportunities when the subject was engaged in discussing matters with one or another of the group, the author displayed to all except the subject a sheet of paper on which was written, "Ignore our new visitor, do not disclose any awareness of his presence." When all of the group had been warned and the subject's attention was distracted, the visitor was signalled to enter the room. He did so quietly and took his seat on the edge of the group. The subject was allowed to finish the discussion in which he was engaged with one of the group and then he was asked to review the course of the afternoon's events, the seeming purpose being to summarize them for the benefit of the group.

Promptly and adequately he reviewed the entire course of the demonstration. During this discourse he was asked repeatedly to point out where the various members of the group had been sitting at different times. When he came to the time of the entrance of *C*, he pointed out how *C* had stood beside the secretary's desk alongside of which was now sitting *E*. He was asked why *C* had remained standing when the secretary's chair was available but he explained that *C* had undoubtedly been busy and did not want to stay long enough to take a seat. He then continued his discussion up to the point of the arrival of *D*. He flushed as he recounted *D*'s recognition of his hypnotic behavior, and among other things, related that *D* had sat in the chair where *E* was then sitting. He was asked if he were sure that the chair had remained constantly in one position throughout the entire time. He declared this doubtful since it was a swivel chair and since *D* had swung around repeatedly as he talked to the various members of the group. At no time did he become aware of the presence of *E*. When the subject had completed his summarization, it was suggested that the group continue as previously.

When the subject's attention was taken up by a discussion with one of the group, *E* was signalled to join in the conversation. He did so readily, timing his remarks to coincide with those of another speaker. The subject replied readily to the other members of the group and did not seem to hear *E* or to be confused by the simultaneity of two utterances. This continued for some time but soon resulted in the group hesitating and faltering in their utterances when *E* spoke. This distressed the subject and he began scrutinizing the various members of the group. Shortly he asked the author if there were something wrong. When asked his reason for this question he replied that the others seemed to be ill at ease and uncertain in their behavior, that they turned their heads unexpectedly and then would halt the movement, that they did not seem to be acting normally. *E* promptly asked the subject what that might mean, but apparently the subject did not hear this question. The subject was assured that everything was all right,

that he need not be concerned about the group since everything was going along satisfactorily *and that no matter what occurred it would all be of interest. Also, it was suggested that he might be interested to discover what the situation was.* (The generality of these and other instructions and statements was intentional, the purpose being to give the subject free opportunity to become aware of *E*. Furthermore, it was expected that he would do so since it was not realized how completely the subject had limited himself to the expected situation and thus excluded from awareness any unusual developments.)

After still further conversation with the group, the subject turned again and stated that he had figured out the situation. The explanation he offered was in full accord with what he had seen at a previous hypnotic demonstration and it was as follows: While his attention had been distracted, advantage had been taken of such an opportunity to induce somnambulistic states in all those present. He explained that repeatedly various members of the group would start to say something and then falter and hesitate, that they kept turning their heads and moving about in an uncertain way as if they were not quite certain what to do. This behavior, he added, was similar to that he had seen at other demonstrations when subjects had been induced to experience active hallucinations. He was asked if he were convinced of his explanation. Scrutinizing the group closely he admitted that he did not see the usual evidences of the trance state, but that he could not conceive of any other explanation which would account for their peculiar behavior. After thinking still further on the matter he volunteered as a second possible explanation that secret instructions to the group to act in this way might have been given without inducing a trance state, but he declared that he did not see how they could carry on such pretenses so effectively.

Here, the question may be raised why the subject offered such a rationalization when he knew that he was in a trance state and, hence, that his state of awareness might be limited. The answer to this probably lies in the misleading effects of his previous experiences and in the fact that the total experimental situation compelled him to believe that he was fully aware of everything. Thus there was no recourse for him except to offer an explanation in terms of established understandings and not in terms of unfamiliar and unexpected possibilities.

The subject was asked if he were willing to continue with his task of behaving as if he were wide awake and giving no evidence that he was in the trance state.

He again expressed his willingness, whereupon he was told to continue but to take care that his general behavior in no way betrayed that he was in a trance state although he was still, upon direct inquiry, to admit that he was hypnotized. The subject asked earnestly and worriedly if he were disclosing his hypnotic state by his general behavior but was promptly

reassured by the general statement that whatever happened would unquestionably be most desirable. Care was taken in this instance as well as all others not to limit or to restrict the subject's possible responses. Rather, reassurances and instructions were worded generally so that the subject was at liberty to make any response for which the occasion arose, and similarly all instructions were given in general terms to permit a spontaneous development of the situation.

Shortly he became interested in a conversation with a member of the group and at once a signal was quietly given to *E* who stepped over and lifted the subject's arm.

(To digress: Ordinarily there are two usual reactions to this type of maneuver. Either the subject may remain totally unaware of what has occurred and continue in his behavior without alteration except for the substitution of memory images of tactile and visual images to permit him to feel and see his hand and arm in the original position. If the enforced hand movements serve to disrupt his general posture and become too forceful, he tends to experience discomfort as if originating in the shoulder. From this point on he may proceed to discover the actual change in position of his arm, sometimes with and sometimes without an awareness of the person manipulating the arm.

Or he may immediately detect the arm movement, become puzzled and proceed to attribute it to hypnotic suggestion or to determine the actual state of affairs, depending upon the nature of the experimental situation. In the present situation the subject was obligated to be aware of all motor behavior, hence his immediate response.)

The subject became aware at once that something was happening to his hand and arm. He flushed, glanced at the author in a somewhat frightened and guilty fashion, attempted to replace his hand in his lap and then tried to resist the handshaking forced upon him. The silent interested scrutiny of the entire group distressed him and he explained in a worried fashion that he knew he should not display unusual motor behavior indicative of the trance state but that something had happened which he could not control and which he could not explain or understand.

In speaking and in glancing at the members of the group, he made no effort to look around *E* nor did he seem to be aware that *E* kept stepping in front of him to block his line of vision.

Urged to describe what was happening, he explained that it seemed as if somebody were manipulating his hand—that the texture of the skin and strength of the grip that he seemed to sense made him feel that some man whom he could not see was present and shaking hands with him. Instead of being given any reply he was asked if he were not, in utter violation of instructions, betraying by his general behavior that he was in a trance state. The subject flushed anew and his face again became expressive of guilt. He protested earnestly that he was doing the best that

he could but that the situation had become inexplicable to him and that he did not understand what was happening unless the author had, in some indirect way, given him special cues or hypnotic suggestions for which he had an amnesia.

While the subject waited for some reassuring or comforting answer, the author turned aside, greeted *E* and proceeded to introduce him formally to the entire group one by one. The subject watched this performance, apparently heard the remarks made and the replies of the group, but he gave no indication of hearing *E*'s acknowledgments. Finally, stepping over to the subject, the author introduced *E* by saying with a rising inflection of the voice, "And this is Dr. *E*." The subject merely repeated the words as if they carried no meaning and stared blankly, making no response to *E*'s courteous acknowledgment of the introduction. Thereupon *E* clapped him jovially on the back. This caused the subject to whirl quickly in a startled fashion and to look about behind him Seeing nobody he stepped backward and leaned with his back against the bookcase as if protecting himself from further assault.

No further attention was paid to him for some minutes and the entire group entered into a conversation with *E* While they were so engaged the subject was observed to study his hand, to move his shoulders as if to feel again the clap on the back and then to study the behavior of the group and to repeat in a puzzled fashion the acknowledgments of the introductions made by the members of the group.

After some minutes of such intense study with much puzzled looking at the author and at the group, the subject finally offered the explanation that everybody was acting as if someone else were present and that he himself had had tactile sensations such as would be experienced from actual contact with a person. He asked if this state of affairs was some sort of an experiment intended to induce him to hallucinate the presence of someone or if there were actually some person present unknown to him as the result of his being in a trance. He reasoned that this latter possibility was not readily tenable since he had become aware at once of the arrivals of *C* and *D* and that, therefore, the present situation was best explained as a result of indirect hypnotic cues and suggestions given to him, supplemented by careful and secret instructions to the group regarding their behavior. This, he declared, was quite likely since the afternoon session had been greatly prolonged, had dragged slowly at times and, furthermore, the group at times had acted uncertain in their behavior as if they did not know just what to do next. Even as he was making these remarks, *E* interrupted to explain that he now had to leave, made the appropriate remarks, and took his departure. The subject completed his remarks without noticing the intentional interruption by *E*, and seemed amused as he watched everybody apparently shaking hands with the empty air and saying good-bye. When, however, *E* stepped over and shook hands with

him he appeared at first bewildered and amused and satisfied. He declared that he was right in his guess, explained that the elaborate shaking of hands was nothing more than a beautiful build-up of indirect suggestions to induce him to do the same thing and he expressed his pleasure in noting how adequately he had unwittingly responded.

Following *E*'s departure, a general conversation was resumed and after the lapse of half an hour the subject was awakened and thanked for his services. He was astonished to note the time and said that he hoped that whatever he had done during the course of the afternoon had proved satisfactory. Of this he was fully assured.

The next day and on several occasions later, indirect casual remarks were made to evoke associations that might disclose some recollections of his trance experiences. These elicited no positive results of any sort.

Subsequently, he was hypnotized and asked to recall the events of that afternoon. This he did adequately except that he disclosed no awareness that there had been a third visitor, even though he recounted fully the seemingly inexplicable developments that had taken place.

Still later in a deep trance, he was asked to do some crystal gazing and by this means to describe everything that happened that afternoon in its correct chronological order. This he did adequately and in much fuller detail than he had previously recounted it verbally, but again there was the same unawareness of the presence of *E*.

During the process of the crystal gazing he hallucinated the remarks of the group and was much impressed by what he described as the excellence of the performance of the group in acting as if someone else were present. He called attention repeatedly to the faltering and hesitation the group showed in speaking as if someone else had started to speak at the same time. He also commented freely on the tendency of the group, as he visualized them in the crystal, to turn their heads and to speak as if they were addressing someone who was not present.

No attempt was made to give him a true understanding. He was thanked for his careful work in crystal gazing and asked if he were satisfied with everything. When he stated simply that he was, the matter was dropped with the hope that sometime later there might be other informative developments. However, to date, the subject remains, so far as can be determined, amnesic in the waking state for the events of that afternoon. In the trance state there is still a persistence of his original understandings.

Summary

The experimental developments may be summarized by itemizing them in chronological order.

1. For purposes of a group demonstration in the author's office, a deeply hypnotized subject was instructed to develop a somnambulistic state and

in this state to simulate, as completely as possible, ordinary waking behavior but to state upon direct questioning whether or not he was in a trance.

2. After a lapse of sufficient time to permit the subject to develop what was considered an adequate "mental set" for this task he was told to proceed.

3. The subject appeared to awaken and participated readily and capably in group activities, impressing everyone with his state of ordinary wakefulness. Direct questions elicited the acknowledgment that he was hypnotized.

4. The subject became aware at once of the separate, unplanned and unanticipated arrivals of two persons well known to him and who were frequent office visitors.

5. From one of these visitors, who had had no experience with hypnosis but who was well aware of the subject's hypnotic work, the subject successfully concealed his trance state.

6. The second visitor, like the first, was fully aware of the general facts about the subject and was, in addition, experienced in hypnosis. After careful study of the entire group this visitor recognized the subject's somnambulistic state and substantiated this discovery by pointing out significant characteristic hypnotic alterations of behavior.

7. After the departure of this visitor the subject, apologetic because of his failure to perform his task satisfactorily and aided by the more critical observations of the group, made renewed efforts to simulate more effectively ordinary waking behavior.

8. There arrived, unexpectedly, an out-of-town visitor whom the subject did not know and who could not be considered a legitimate extension of the office situation, and who was introduced unobtrusively into the general situation when the subject's attention was otherwise directed.

9. The subject remained consistently unaware of and unresponsive to this visitor at both auditory and visual levels despite his full contact with the situation in other regards.

10. The altered behavior of the group in relation to this visitor was readily observed by the subject but was not understood by him and he offered various rationalizations in explanation of it. These were in accord with his previous hypnotic experiences and his apparent immediate limitations of awareness.

11. Physical manipulation of the subject by this visitor evoked general manifestations in accord with his hypnotic condition. This caused the subject to develop startle and fright reactions and led him to express guilt feelings because he found himself uncontrollably violating instructions to behave as if wide awake.

12. Further instruction to behave fully as if wide awake did not enable the subject to become aware of the visitor, although the group increasingly manifested involuntary reactions to the visitor's presence.

13. The subject finally resolved his inability to understand the situation as it had developed for him by misinterpreting it as a planned and systematic use of indirect suggestions by the entire group to elicit involuntary hypnotic responses from him.

14. Subsequent questioning of the subject in the waking state disclosed an apparent amnesia for all trance events.

15. Inquiry under hypnosis elicited a ready verbal account of everything except an awareness of the third visitor.

16. Crystal gazing by the subject resulted in a full detailed account but without the discovery of the presence of the third visitor. No effort was made to correct the subject's understanding of the total situation.

Concluding Remarks

Definitive conclusions cannot be drawn from two reports of behavior as complex as that which these subjects displayed. Nevertheless, the statement is warranted that the results obtained are not an atypical highly individualistic phenomenon but that similar behavior may reasonably be expected, but not necessarily be easily obtained, from other subjects under comparable conditions.

Neither can there be any extensive discussion of the possible nature and significance of these experimental results since they constitute an initial study of a most difficult problem, an understanding of which can be reached only by repeated successful studies variously controlled and yielding informative negative or positive results. However, it is to be noted that these experimental findings, so expressive of an altered state of awareness not ordinarily conceivable, are in accord with the findings made in other experimental hypnotic studies of induced deafness, color blindness, "regression states," amnesia, aphasia, anaesthesia and post-hypnotic states, to mention some of the studies listed in the bibliography of references given at the end of this article. Additionally, they are comparable in some degree to those common spontaneous limited restrictions of awareness seen in states of intense concentration, abstraction and revery or in the failure to perceive something obvious because of a state of expectation of something quite different.

Certain general considerations, already mentioned in the introduction, may be re-emphasized. The first of these, stated briefly, concerns the investigative possibilities of this type of experimental procedure for certain complex psychological phenomena as contrasted to rigidly controlled experimental procedures which cannot provide for unexpected spontaneous developments extending beyond the devised experimental situation. Often such unanticipated behavioral developments constitute the more significant findings and are of primary importance in the experimental study of complex and involved phenomena. When such behavior has been elicited there is then an opportunity to devise rigidly controlled experimental conditions by which to define it in terms of a known situation, instead of attempting the difficult problem of trying initially to define the precise conditions under which presumably possible behavior might appear.

The second consideration relates to the variety of spontaneous volitional activities by deeply hypnotized subjects. These two reports disclose the capacity of hypnotized subjects to respond adequately to a given situation

without being restricted or limited to the passively responsive behavior so often regarded as a criterion of the trance state. In other words, there seems to be no valid reason to expect the hypnotized subject to lose his capacities for spontaneous, expressive and capable behavior or to expect him to become simply an instrument of the hypnotist. Rather, the subject may more properly be expected to behave adequately within the situation that is established for him, and hence, even as these subjects did, to function as capably in the trance state as in the waking state

The third consideration is the possible importance of neuro- and psycho-physiological processes in eliciting extremely complex hypnotic behavior. It is hardly reasonable to expect a hypnotized subject, upon a snap of the fingers or the utterance of a simple command, to develop at once significant, complex and persistent changes in his behavioral functioning. Rather, it is to be expected that time and effort are required to permit a development of any profound alterations in behavior. Such alteration must presumably arise from neuro- and psycho-physiological changes and processes within the subject, which are basic to behavioral manifestations, and not from the simple experience of hearing a command spoken by the hypnotist. One needs only to take into consideration the marked neuro- and psycho-physiological differences between the behavior of the hypnotized subject in an ordinary trance state and that of the unhypnotized subject to realize that still further developments in hypnotic behavior may be dependent upon additional and extensive changes in the neurological and the psychological functioning of the individual. In brief, these two reports indicate that complex hypnotic behavior is not a superficial phenomenon elicited readily by simple commands, but rather, that it is based upon significant processes of behavioral functioning within the subject which are fundamental to outward manifestations and that it constitutes an experiential process for the subject.

2

Further Clinical Techniques of Hypnosis: Utilization Techniques



Milton H. Erickson

In the more common techniques of hypnotic trance induction, the procedure is based primarily upon altering the subject's activity of the moment and instructing him variously in a different form of behavior. Thus, the subject may be told to sit quietly and comfortably in a chair, to fixate his gaze and then to relax his body progressively and to develop a trance state as he does this. Or he may be asked to close his eyes and to develop imagery of various types until a trance state develops. Similarly, in the hand levitation technique, a participatory attitude, an interest in the experiential aspects of the situation, and the development of ideomotor activity may all be suggested as a measure of inducing a trance.

Such techniques as these require a willing acceptance of and cooperation with an externally suggested or imposed form of behavior, which may be either active or passive. Resistance to or rejection of this imposed behavior may require resort by the operator to another technique more readily accepted or more pleasing to the subject. Or it may be met by a fatiguing of the subject into an acquiescence by the operator's persistence, and sometimes it requires a postponement of the effort at hypnosis. Ordinarily, one or another of these measures meets adequately the particular resistance problem presented by the individual patient, but there is always a risk of some degree that a change of technique, undue prolongation of effort, or postponement of the hypnosis will have an adverse effect upon the patient's acceptance of hypnosis as a personally possible experiential learning.

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However, there is another type of patient, actually readily amenable to hypnosis but unresponsive and resistant to the usual induction techniques. While encountered more frequently in psychotherapeutic practice, they are met not infrequently in general medical and dental practice and are judged too frequently to be unsuitable patients for the use of hypnosis. These patients are those who are unwilling to accept any suggested behavior until their own resistant or contradictory or opposing behavior has first been met by the operator. By reason of their physical condition, state of tension or anxiety, intense interest, concern or absorption in their own behavior, they are unable to give either actively or passively the requisite cooperation to permit an effective alteration of their behavior. For these patients, what may be termed *Techniques of Utilization* frequently serve to meet most adequately their special needs. But more than this, these same techniques are readily applicable to the usual patient and they frequently serve to facilitate in both rapidity and ease the process of trance induction in the average patient.

These techniques are, in essence, no more than a simple reversal of the usual procedure of inducing hypnosis. Ordinarily, trance induction is based upon securing from the patient some form of initial acceptance and cooperation with the operator. In Techniques of Utilization the usual procedure is reversed to an initial acceptance of the patient's presenting behavior by the operator and a ready cooperation with it by the operator, however seemingly adverse that presenting behavior may appear to be in the clinical situation.

To clarify and illustrate these various Techniques of Utilization, the following clinical examples will be cited:

Example 1

The patient entered the office in a most energetic fashion, declared at once that he did not know if he were hypnotizable but that he would be willing to go into a trance if it were at all possible, provided that the writer were willing to approach the entire matter in an intellectual fashion rather than in a mystical, ritualistic manner. He went on to declare that he needed psychotherapy for a variety of reasons, that he had tried various schools of psychotherapy extensively without benefit, that hypnosis had been attempted on various occasions and had failed miserably because *of mysticism and a lack of appreciation for the "intellectual" approach.*

Inquiry elicited that he felt that an "intelligent" approach signified not a suggestion of ideas to him but a questioning of him concerning his own thinking and feeling in relationship to reality. For example, the writer, he declared, should recognize that he was sitting in a chair, that the chair was in front of a desk and that these constituted absolute facts of reality and, as such, could not be overlooked, forgotten, denied, or ignored. In further illustration he pointed out that he was obviously tense and anxious and concerned about the tension tremors of his hands, which were

resting on the arms of the chair, and that he was also highly distractible, noticing everything about him.

This last comment was seized upon immediately as the basis for the initial cooperation with him, and he was told, "Please proceed with an account of your ideas and understandings, permitting me only enough interruptions to *insure that I understand fully* and *that I follow along with you*. For example, you mentioned the chair but obviously you have seen my desk and have been distracted by the objects on it. Please explain fully."

He responded verbosely with a wealth of more or less connected comments about everything in sight, but, at every slight pause, the writer interjected a word or a phrase to direct his attention anew. These interruptions, made with increasing frequency, were of the following order: And that paperweight; the filing cabinet; your foot on the rug; the ceiling light; the draperies; your right hand on the arm of the chair; the pictures on the wall; the changing focus of your eyes as you glance about; the interest of the book titles; the tension in your shoulders; the feeling of the chair; the disturbing noises; disturbing thoughts; weight of hands; weight of feet, weight of problems, weight of desk; the stationery stand; the records of many patients; the phenomena of life, of illness, of emotion, of physical and mental behavior; the restfulness of relaxation; the need to attend to one's needs; the need to attend to one's tension while looking at the desk or the paperweight or the filing cabinet; the comfort of withdrawal from the environment; fatigue and its development; the unchanging character of the desk; the monotony of the filing cabinet; the need to take a rest; the comfort of closing one's eyes, the relaxing sensation of a deep breath; the delight of learning passively; the capacity for intellectual learning by the unconscious; and various other similar brief interjections were offered, slowly at first and then with increasing frequency.

These interjections initially were merely supplementary to the patient's own train of thought and utterances and the effect, at first, was simply to stimulate him to further effort. As this response was made, it became possible to utilize his acceptance of stimulation of his behavior by a procedure of pausing and hesitating in the completion of an interjection. This served to effect in him an *expectant dependency* upon the writer for further and more complete stimulation

As this procedure was continued, gradually and unnoticeably to the patient, his attention was progressively directed to inner subjective experiential matters, whereupon it became possible to use almost directly a simple, progressive relaxation technique of trance induction and to secure a light medium trance.

Throughout therapy for this patient, further trance inductions were similar, although the procedure became progressively abbreviated.

Example 2

Comparable to the first patient was the woman who presented a somewhat similar problem. She stated that in all previous attempts she had been defeated in her efforts to secure therapy by a compulsive attentiveness to the minutiae of the immediate environment, and that she invariably found difficulty in completing her history and in attending to what was said

to her because of the overpowering nature of her need to attend to and to comment upon what she saw about her. (Even this small amount of history was interrupted by her inquiries about or simple mention of various objects in the office.) She explained further that a family friend, a psychiatrist who knew her well, had suggested that hypnosis might enable her to cooperate in therapy, and he had referred her to the writer.

Since she herself had impressed the writer as a possible candidate for hypnotherapy and since little progress was being made in the interview, hypnosis was attempted by utilizing her own behavior as the technique most suited to be employed. This was done in the following fashion:

As she inquired about a paperweight on the desk, reply was quickly made, "It is on the corner of the desk just behind the clock." As she flicked her gaze to the clock and asked urgently, "What time is it?", she was answered with, "The minute hand indicates the same numeral as does the desk calendar."

There followed then a whole series of comments and inquiries by her without pause for any replies, and with a rapid shifting from one object or subject to another. Her entire behavior was similar to that of an unhappy small child, warding off questioning by the measure of forcing the direction of the interrogation into irrelevant, distracting avenues.

Once launched into her verbal flow, it was not possible to interrupt her verbally except with great difficulty, and then fruitlessly. However, the measure of extending a paper knife compelled her to make mention of it. As she responded and then continued in her monologue, the writer polished his glasses, again forcing her to make a comment in accord with her pattern of behavior. Next she was interrupted by a placing of the glasses in their case, then the desk blotter was shifted, a glance was directed at the book case, and the schedule book opened and closed. Each of these acts was fitted by her into her compulsive stream of utterances. At first these various acts were performed by the writer at intervals and rather quickly, but as she developed an attitude of expectation for the writer's silent interruptions, his movements were deliberately slowed and made with slight hesitant pauses, which compelled her to slow down her own behavior and to await the writer's utilization of her conduct. Then the writer added to his silent indication of objects an identifying word or phrase of comment.

As this procedure was continued, it had a progressively profound inhibitory effect upon her, with the result that she began to depend more and more exclusively upon the writer to indicate either verbally or by gesture the next object she was to comment upon or to name. After about forty minutes of this, it became possible to instruct her to close her eyes and to name from memory everything that she had seen and to do this until she developed a deep hypnotic sleep. As she obeyed, she was prompted, "And now, 'paper-weight,' and deeper asleep; and now 'clock,' go even deeper into the trance," etc., until in another ten minutes a profound somnambulistic trance state was secured.

Thereafter, through this measure of utilizing as an induction technique her own pattern of resistant behavior, ready cooperation in therapy marked the clinical course of this previously "impossible" patient. Each therapeutic session at the beginning began with her compulsive behavior which was immediately utilized as a technique of another induction of a therapeutic trance. Later a simple gesture indicating the chair in which she was to sit sufficed to elicit a trance state.

Example 3

Essentially the same procedure was employed with a male patient in his early thirties who entered the office and began pacing the floor. He explained repetitiously that he could not endure sitting quietly or lying on a couch and relating his problems and that he had repeatedly been discharged by various psychiatrists because they "accused" him of lack of cooperation. He asked that hypnotherapy be employed, if possible, since his anxieties were almost unendurable and always increased in intensity in a psychiatrist's office and made it necessary for him to pace the floor constantly.

There was still further repetitious explanation of his need to pace the floor which was finally successfully interrupted by the question, "Are you willing to cooperate with me *by continuing to pace the floor, even as you are doing now.*" His reply was a startled, "Willing? Good God, man! I've got to do it if I stay in the office." Thereupon, he was asked to permit the writer to participate in his pacing by the measure of directing it in part. To this he agreed rather bewilderedly.

Thereupon he was asked to pace back and forth, to turn to the right, to the left, to walk away from the chair, and to walk toward it. At first these instructions were given in a tempo matching his step. Gradually the tempo of the instructions was slowed and the wording changed to, "Now turn to the right away from the chair in which you can sit; turn left toward the chair in which you can sit; walk away from the chair in which you can sit; walk toward the chair in which you can sit," etc. By this wording a foundation was laid for more cooperative behavior.

The tempo was slowed still more and the instructions again varied to include the phrase, "the chair which you will soon approach as if to seat yourself comfortably," and this in turn was altered to, "the chair in which you will shortly find yourself sitting comfortably." His pacing became progressively slower and more and more dependent upon the writer's verbal instructions until direct suggestions could be given that he seat himself in the chair and go deeper and deeper into a profound trance as he related his history.

Approximately forty-five minutes were spent in this manner inducing a medium trance that so lessened the patient's tension and anxiety that he could cooperate readily with therapy thereafter.

The value of this type of Utilization Technique probably lies in its effective demonstration to the patient that he is completely acceptable and that the therapist can deal effectively with him regardless of his behavior. *It meets both the patient's presenting needs and it employs as the significant part of the induction procedure the very behavior that dominates the patient.*

Another type of Utilization Technique is the employment of the patient's inner, as opposed to outer, behavior, that is, using his thoughts and understandings as the basis for the actual induction procedure. This technique has been employed experimentally and also more than once in therapeutic situations where the type of the patient's resistances made it advisable.

Although it has been effectively used on naive subjects, ordinary good intelligence and some degree of sophistication, as well as earnestness of purpose, are required.

The procedure is relatively simple. The subject, whether experimental or therapeutic, is either asked or allowed to give expression freely to his thoughts, understandings, and opinions. As he does this, he is encouraged to speculate aloud more and more extensively upon what could be the possible course of his thinking and feeling if he were to develop a trance state. As the patient does this, or even if he merely protests about the impossibility of such speculation, his utterances are repeated after him in their essence as if the operator were either earnestly seeking further understanding or were confirming his statements. Thus, further comment by the subject is elicited and repeated in turn by the operator. In the more sophisticated subject, there tends to be greater spontaneity, but occasionally the naive, even uneducated, subject may prove to be remarkably responsive.

Example 4

An illustration of this technique is the following account, considerably abbreviated because of the extensive repetition required. With this technique, the patient's utterances may vary greatly from one instance to another, but the following example is given in sufficient detail to illustrate the method.

This patient, in seeking psychiatric help, declared, "I've made no progress at all in three years of psychoanalysis, and the year I spent in hypnotherapy was a total loss. I didn't even go into a trance. But I tried hard enough. I just got nowhere. But I've been referred to you and I don't see much sense in it. Probably another failure. I just can't conceive of me going into a trance. I don't even know what a trance is." These remarks, together with the information received previously from the referring physician, suggested the possibility of employing her own verbalization as the induction procedure.

In the following account, the writer's utterances are in italics:

You really can't conceive of what a trance is—no, I can't, what is it?- *yes, what is it?* a psychological state, I suppose *A psychological state you suppose, what else?*—I don't know—*you really don't know*—no, I don't—*you don't, you wonder, you think*—think what—*yes, what do you think, feel, sense?*—(pause)—I don't know—*but you can wonder*—do you go to sleep?—*no, tired, relaxed, sleepy*—really tired—*so very tired and relaxed what else?*—I'm puzzled—*puzzles you, you wonder, you think, you feel, what do you feel?*—my eyes—*yes, your eyes, how?*—they seem blurred—*blurred, closing*—(pause)—they are closing—*closing, breathing deeper*—(pause)—*tired and relaxed, what else?*—(pause)—*sleep, tired, relaxed, sleep, breathing deeper*—(pause)—*what else*—I feel funny—*funny, so comfortable, really learning*—(pause)—learning, *yes, learning more and more*—(pause)—*eyes closed, breathing deeply, relaxed, comfortable, so very comfortable, what else?*—(pause)—I don't know—*you really don't know, but*

really learning to go deeper and deeper—(pause)—too tired to talk, just sleep—(pause)—*maybe a word or two*—I don't know (spoken laboriously)—*breathing deeper and you really don't know, just going deeper, sleeping soundly, more and more soundly, not caring, just learning, continuing ever deeper and deeper and learning more and more with your unconscious mind.*

From this point on it was possible to deal with her simply and directly without any special elaborations of suggestions, and subsequently trances were secured through the use of post-hypnotic suggestions.

The above is simply a summary of the illustrative utterances and the method of utilization. In general there is much more repetition, usually only of certain ideas, and these vary from patient to patient. Sometimes this technique proves to be decidedly rapid. Frequently with anxious, fearful patients, it serves to comfort them with a conviction that they are secure, that nothing is being done to them or being imposed upon them, and that they feel that they can comfortably be aware of every step of the procedure. Consequently, they are able to give full cooperation, which would be difficult to secure if they were to feel that a pattern of behavior was being forcibly imposed upon them.

The general principle of the above technique can be readily adapted into a separate Utilization Technique, somewhat parallel in character, but a definitely different, effective reinduction technique for those patients previously good hypnotic subjects but who, for one reason, or another, have become highly resistant to hypnosis despite outward cooperativeness.

The procedure is simply to get the subject to recall from the beginning in a reasonably orderly, detailed manner the events of a previous successful hypnotic trance. As the subject does this, repetitions of his statements are offered and helpful questions are asked. As he becomes absorbed in this task, the subject revivifies the previous trance state, usually regressing subjectively to that previous situation and developing a special rapport with the operator. The following example, in summary form, illustrates this utilization technique:

Example 5

A volunteer subject at a lecture before a university group declared, "I was hypnotized once several years ago. It was a light trance, not very satisfactory, and while I would like to cooperate with you, I'm quite certain that I can't be hypnotized." "Do you recall the physical setting of that trance?" "Oh yes, it was in the psychology laboratory of the university I was then attending." "Could you, as you sit here, recall and describe to me the physical setting of that trance situation?"

He agreeably proceeded to describe in detail the laboratory room in which he had been hypnotized lightly, including a description of the chair in which he sat, and a description of the professor who induced the trance. This was followed by a comparable response to the writer's request that he describe in as orderly and as comprehensive a fashion as possible his

recollection of the actual suggestions given him at that time and the responses he made to them.

Slowly, thoughtfully, the subject described an eye closure technique with suggestions of relaxation, fatigue and sleep. As he progressed in his verbalizations of his recollections, his eyes slowly closed, his body relaxed, his speech became slower and more hesitant, and he required increasingly more prompting until it became evident that he was in a trance state. Thereupon, he was asked to state where he was and who was present. He named the previous university and the former professor. Immediately he was asked to listen carefully to what the writer had to say also, and he was then employed to demonstrate the phenomena of the deep trance.

This same technique of utilizing previous hypnotic learnings has been employed with patients, particularly those who develop inexplicable resistances to further hypnosis or who declare that they have been in hypnotherapy elsewhere and therefore doubt seriously their ability to develop a trance for a new hypnotherapist. The simple measure of seating the patient comfortably and asking him to give a detailed account of a previous successful trance experience results in a trance, usually decidedly rapidly and usually a revivification of the previous trance, or even a regression to that trance. This technique can also be utilized with one's own patients who have developed resistance to further hypnosis. In such instances, resolution of the resistances is frequently greatly facilitated and therapy accelerated.

Another Utilization Technique, comparable to those immediately above, has been employed experimentally and clinically on both naive and experienced subjects. It has been used as a means of circumventing resistances, as a method of initial trance induction, and as a trance reinduction procedure. It is a technique based upon an immediate direct eliciting of meaningful unconsciously executed behavior which is separate and apart from consciously directed activity except that of interested attention. The procedure is as follows:

Example 6

Depending upon the subject's educational background, a suitable casual explanation is given of the general concepts of the conscious and of the unconscious or subconscious minds. Similarly, a casual though carefully instructive explanation is given of ideomotor activity with a citing of familiar examples, including hand levitation.

Then, with utter simplicity, the subject is told to sit quietly, to rest his hands palm down on his thighs, and to listen carefully to a question that will be asked. This question, it is explained, is possible of answer only by his unconscious mind, not by his conscious mind. He can, it is added, offer a conscious reply, but such a reply will be only a conscious statement and not an actual reply to the question. As for the question itself, it can be one of several that could be asked, and it is of no particular significance to the personality. Its only purpose is to give the unconscious mind an opportunity to manifest itself in the answer given. The further explanation is offered that the answer will be an ideomotor response of

one or the other hand upward, that of the left signifying an answer of "no," that of the right a 'yes," to the question asked the unconscious mind

The question is then presented Does your unconscious mind think that you can go into a trance? Further elaboration is offered again 'Consciously you cannot know what your unconscious mind thinks or knows But your unconscious mind can let your conscious mind discover what it thinks or understands by the simple process of causing a levitation of either the right or the left hand Thus your unconscious mind can communicate in a visibly recognizable way with your conscious mind Now just watch your hands and see what the answer is Neither you nor I know what your unconscious mind thinks but as you see one or the other of your hands lifting, you will know

If there is much delay, additional suggestions can be given "One of your hands is lifting Try to notice the slightest movement try to feel and to see it and enjoy the sensation of its lifting and be pleased to learn what your unconscious thinks

Regardless of which hand levitates a trance state supervenes simultaneously frequently of the somnambulistic type Usually it is advisable to utilize, rather than to test the trance immediately, since the subject tends to arouse promptly This is usually best done by remarking simply and casually It is very pleasing to discover that your unconscious can communicate with your conscious mind in this way and there are many other things that your unconscious can learn to do For example now that it has learned that it can develop a trance state and to do it remarkably well it can learn various trance phenomena For instance, you might be interested in and the needs of the situation can then be met

In essence, this technique centers in the utilization of the subject's interest in his own unconscious activity A yes or no situation is outlined concerning thinking, with action contingent upon that thinking and constituting an overt unconscious communication a manifestation basic to and an integral part of an hypnotic trance In other words it is necessary for the subject to go into a trance in order to discover the answer to the question

Various experienced subjects approached with this technique have recognized it immediately and made comment to the effect 'How interesting! No matter which answer you give you have to go into a trance first'

The willing subjects disclose from the beginning their unaffected interest while resistant unwilling subjects manifest their attitudes by difficulty in understanding the preliminary explanations by asking repeatedly for instructions and then by an anticipation of hand levitation by lifting the left hand voluntarily Those subjects who object to trance induction in this manner tend to awaken at the first effort to test or to utilize the trance Most of them however will readily go back into the trance immediately when told, 'And you can go into a trance just as easily and quickly as your unconscious answered that question just by continuing to watch as your unconscious mind continues to move your hand up toward your face As your hand moves up your eyes will close, and you will go into a deep trance' In nearly all instances, the subject develops a trance state

An essential consideration in this technique, however, is an attitude on the part of the operator of utter expectancy, casualness, and simplicity, which places the responsibility for any developments entirely upon the subject

A patient's misunderstandings, doubts, and uncertainities may also be utilized as the technique of induction. Exemplifying this approach are the instances of two patients, both college bred women, one in her late thirties, the other in her early forties.

Example 7

The first patient expressed extreme doubt and uncertainty about the validity of hypnotic phenomena as applied to herself as a person, but explained her desperate need for help compelled her to try it as a remotely possible means of therapy.

The other declared her conviction that hypnosis and physiological sleep were necessarily identical or, at the very least, equal and complementary component parts of a single psychophysiological manifestation and that she could not possibly go into a trance without first developing physiological sleep. This, she explained, would preclude therapy, and yet she felt that hypnosis offered the only possible, however questionable, means of psychotherapy for her, provided that the hypnotherapy was so conducted as to preclude physiological sleep. That this was possible she disbelieved completely.

Efforts at explanation were futile and served only to increase the anxiety and tension of both patients. Therefore an approach utilizing their misapprehensions was employed, and the technique, except for the emphasis employed, was essentially the same for both patients. This was done by instructing each that deep hypnosis would be employed and that each would cooperate in going into a deep trance by assessing, appraising, evaluating, and examining the validity and genuineness of each item of reality and of each item of subjective experience that was mentioned. In so doing, each was to feel under obligation to discredit and to reject anything that seemed at all uncertain or questionable. For the one, emphasis was placed primarily upon subjective sensations and reactions with an interspersed commentary upon reality objects. For the other, attentiveness to reality objects as proof of wakefulness was emphasized with an interspersing of suggestions of subjective responses. In this manner, there was effected for each a progressive narrowing of the field of awareness and a corresponding increase in a dependency upon and a responsiveness to the writer. As this state developed, it became possible to induce in each a somnambulistic trance by employing a simple eye closure progressive relaxation technique slightly modified to meet the special needs of each patient.

To illustrate the actual verbalization employed, the following sample of utterances, in which the emphasis is approximately evenly divided between subjective aspects and reality objects, is offered:

"As you sit comfortably in that chair you can feel the weight of your arms resting on the arms of the chair. And your eyes are open and you can see the desk and there is only the ordinary blinking of the eyelids, which you may or may not notice, just as one may notice the feeling of the shoes on one's feet and then again forget about it. And you really know that you can see the bookcase and you can wonder if your unconscious has noted any particular book title. But now again you can note the feeling of the shoes on your feet as they rest on the floor and at the same

time you can become aware of the lowering of your eyelids as you direct your gaze upon the floor. And your arms are still resting their weight on the arms of the chair, and all these things are real and you can be attentive to them and sense them. And if you look at your wrist and then look at the corner of the room perhaps you can feel or sense the change in your visual focus and perhaps you can remember when, as a child, you may have played with the experience of looking at an object as if it were far off and then close by, and as associated memories of your childhood pass through your mind, they can range from simple memories to tired feelings because memories are real. They are things, even though abstract, as real as the chair and the desk and the tired feeling that comes from sitting without moving, and for which one can compensate by relaxing the muscles and sensing the weight of the body, just as one can feel so vividly the weariness of the eyelids as fatigue and relaxation develop more and more. And all that has been said is real and your attention to it is real, and you can feel and sense more and more as you give your attention to your hand or to your foot or the desk or your breathing or to the memory of the feeling of comfort some time when you closed your eyes to rest your gaze. And you know that dreams are real, that one sees chairs and trees and people and hears and feels various things in his dreams and that visual and auditory images are as real as chairs and desks and bookcases that become visual images." In this way, with increasing frequency, the writer's utterances became simple, direct suggestions for subjective responses.

This technique of utilizing doubts and misunderstandings has been used with other patients and with experimental subjects and it also adapts well to the use of hand levitation as a final development, since ideomotor activity within the visual range offers opportunity for excellent objective and subjective realities.

Another Utilization Technique centers around the need that some people, potentially excellent subjects, have to resist and to reject completely hypnosis as a personal experience until after it becomes paradoxically an accomplished fact for them.

Occasionally such a person, because of naivete or misdirected resistance, may develop even a somnambulistic trance, but thereafter is likely either to reject hypnosis completely or to limit unduly and inexplicably his capacity for hypnotic responses. More frequently such persons remain seemingly unhypnotizable, often despite an obvious capacity for responsiveness, until their special individual needs are met in a manner satisfying to them. Those who permit themselves limited hypnotic responses may, for example, develop an excellent obstetrical anesthesia but remain incapable of dental anesthesia, or vice versa. But should by some chance the second type of manifestation be secured, there may occur a loss of the capacity for the first type, or there may be a loss of capacity for all hypnotic responses. Another example is the similar type of patient in psychotherapy who will respond hypnotically only to specific types of circumscribed therapeutic problems.

On the whole, these individuals constitute seemingly impossible or unpre-

dictable and unreliable hypnotic subjects until their special needs are met, whereupon they can then become remarkably competent subjects.

Following are accounts of this type of subject, encountered in both experimental and clinical work.

Example 8

A 20-year old girl, a member of a group of psychology students actively engaged in experimental hypnosis both as subjects and operators, failed completely to develop any trance phenomena despite many hours of endeavor to go into a trance. She had originally expressed a conviction that hypnosis as a personal experience was impossible but that she hoped to learn otherwise. Finally two of her associates, both competent as an operator or as a somnambulistic subject, suggested to Miss X, as a last resort, a visit to the writer. The situation was explained in full, and Miss X reaffirmed both her conviction and her hope, and she requested the writer to make every possible effort to induce a trance. Her entire appearance and behavior suggested that she was essentially a most responsive type of personality.

She was found to be outwardly most cooperative but actually completely resistive and unresponsive hypnotically, even after three hours of intensive effort with a great variety of both direct and indirect techniques. This served to confirm Miss X in her conviction of her unhypnotizability and to suggest to the writer the experimental possibility of utilizing Miss X's need to resist and to reject hypnosis as a personal experience as a means of effecting paradoxically trance phenomena or a trance state for her.

To achieve this, Miss X was reminded that her two companions, A and B, were excellent somnambules and could enter a deep trance at a moment's notice. A and B were then instructed openly to remain continuously in the state of psychological awareness that existed for them at the moment and not to betray in any way to Miss X whether or not they had spontaneously gone into a trance state in response to the writer's efforts with Miss X. (They had not developed trance states, a fact obvious to the writer but not to Miss X.)

She was then challenged to scrutinize A and B carefully and to state definitely if she knew if they were in a trance, while A and B, in turn, were told to answer honestly with a simple nod or shake of the head any question put to them when so instructed by the writer.

Miss X confessed her inability to identify the state of awareness of either A or B. She was reminded that she was awake and could not develop a trance state and hence could not manifest trance phenomena, but that A and B, being experienced subjects, could do so readily. She agreed, and the statement was made that, if A and B were in a trance state, negative visual hallucinations could be elicited. Again she agreed. Turning away from the three of them and facing the office wall, the writer offered the following instructions: "Miss X, I want you to observe carefully the responses that A and B make, since I shall not be looking at them, and at the end of my remarks I shall ask them a special question which they are to answer by either a nod or shake of the head, as I explained before. All of you know, do you not, the fish pond (a campus landmark) and all of you can nod your head in answer. You have seen it

many times, you know it well, and you can see it any time you want to. Now, Miss X, observe A and B carefully and be ready to report their answer, and A and B, while Miss X continues to await your response, DO NOT SEE (speaking softly, emphatically and looking intently and pointing with slow deliberation at the office wall that was well within Miss X's field of vision), DO NOT SEE THE FISH POND RIGHT THERE. And you don't see the fish pond, do you?" A and B both shook their heads negatively and Miss X excitedly declared, "They are both in a trance. They are showing negative hallucinations." Without comment to her, the writer asked A and B if they saw the students walking past the fish pond or the fish and plants in the water. Again, they shook their heads negatively.

Thereupon the writer suggested to Miss X that A and B be left to their own devices while she and he discussed hypnosis. She agreed and almost immediately declared that the demonstration of negative visual hallucinations on the part of A and B had convinced her in some way that she could be hypnotized and that she would be glad to volunteer at any time to go into a trance, that she was certain that she could go into a deep trance.

Instead of replying directly to her statement she was asked if she were willing to talk to A and B. Upon her assent, they were told to ask Miss X the written questions the writer had just handed to them. They asked her if she could see the fish pond and the students walking past it. Upon her affirmative reply, she was asked to state exactly where she was. She described herself as standing with them and with the writer some ten feet away from the campus fish pond.

She was then told by the writer that A and B would be awakened from their "trance" by the simple measure of having them, *while she did likewise*, close their eyes and then at the count of three, there would be a full awakening from all trance states with the continuing ability to go into a trance at any desired future time for any legitimate purpose. She awakened from her trance as instructed with a complete spontaneous amnesia for trance events and with an apparent persistence of her original ideas of her unhypnotizability. The trio was then dismissed, with A and B privately instructed to avoid all mention of hypnosis.

The next day Miss X again volunteered as a subject at the psychology laboratory and developed rapidly a profound somnambulistic trance. So pleased was she that she visited the writer that evening with the request that he make another attempt to hypnotize her. She responded with a deep trance almost immediately, and thereafter did extensive work as an experimental subject.

Example 9

A clinical instance in which this same technique was employed centers in an obstreperous 25-year-old patient for whom hypnotherapy was not indicated. Nevertheless he repeatedly demanded hypnosis and in the same breath declared himself unhypnotizable. On one occasion he forced the issue by demanding absolutely, "Hypnotize me even though I'm not hypnotizable."

This demand was met by employing softly spoken suggestions of slow, progressive relaxation, fatigue, and sleep. Throughout the hour that this

was done, the patient sat on the edge of his chair, gesticulated and bitterly denounced the entire procedure as stupid and incompetent. At the close of the session, the patient declared that his time and money had been wasted, that he could "remember every ineffectual, stupid suggestion" that had been offered, and that he could "remember everything that took place the whole time."

The writer immediately seized upon these utterances to declare somewhat repetitiously, "Certainly you remember. You are here in the office. Naturally here in the office you can remember everything. It all occurred here in the office, and you were here, and here you can remember everything." Impatiently he demanded another appointment and left angrily.

At the next appointment, he was deliberately met in the reception room. He immediately inquired if he had kept his previous appointment. Reply was given evasively that surely he would remember if he had done so. He explained that on that day he had suddenly found himself at home sitting in his car unable to remember if he had just returned from his appointment or were just leaving for it. This question he debated for an indefinite period of time before he thought of checking with his watch, and then he discovered that the time was long past the proper hour. However, he was still unable to decide the problem because he did not know how long he had debated the question. Again he asked if he had kept his previous appointment, and again he was assured evasively that surely he would remember if he had.

As he entered the office, he stopped short and declared, "I did too keep my appointment. You wasted my time with that silly, soft, gentle, ineffectual hypnotic technique of yours, and you failed miserably."

After a few more derogatory comments from him, he was maneuvered into returning to the reception room, where again he manifested an amnesia for the previous appointment as well as his original inquiries about it. His questions were again parried and he was led back into the office, where for a second time he experienced full recall of the previous appointment.

Again he was induced to return to the reception room with a resultant reestablishment of his amnesia, but upon reentering the office, he added to his recollection of the previous appointment a full recall of his separate entrances into the reception room and the accompanying amnesic states. This bewildered and intrigued him to such an extent that he spent most of the hour going from the office to the reception room and back again, experiencing a full amnesia in the reception room and full recollection, inclusive of the reception room manifestations, of the total experience in the office.

The therapeutic effect of this hypnotic experience was the correction almost immediately of much of the patient's hostile, antagonistic, hypercritical, demanding attitude and the establishment of a good rapport and an acceleration of therapy, even though no further hypnosis was employed.

The technique employed in these two instances is somewhat comparable to the procedure reported by this writer in "Deep Hypnosis and Its Induction" (1) and it has been used repeatedly with various modifications. Patients requiring the use of this technique are usually those with a distressing need for a sense of utter security in the competence of the therapist. Its advantage as a therapeutic technique lies in the fact that it permits

the patient to achieve that sense of security through experiential learning as a single separate process rather than through a prolonged demonstration of competence always subject to criticism and rejection.

In essence, this technique is no more than a modification of a much simpler elementary procedure, such as the hand clasp and the postural sway, sometimes so effectively employed to correct minor attitudes of doubt and resistance to trance induction. Its advantage lies in the effectiveness with which it can both elicit the phenomena of even deep hypnosis and correct various problems of resistance to hypnosis and to therapy.

Another Utilization Technique was employed during a lecture and demonstration before a medical student body. One of the students proceeded, at the beginning of the lecture, to heckle the writer by denouncing hypnosis as a fraud and the writer as a charlatan, and he declared that any demonstration using his fellow students would be a prearranged hoax perpetrated upon the audience. The measures employed were as follows:

Example 10

Since he persisted in his noisy, adverse comments as the lecture proceeded, it became necessary to take corrective action. Accordingly, the lecture was interrupted and the writer engaged in an acrimonious interchange with the heckler, in which the writer's utterances were carefully worded to elicit an emphatic contradiction from the heckler, either verbally or by action.

Thus he was told that he had to remain silent; that he could not speak again; that he did not dare to stand up; that he could not again charge fraud; that he dared not walk over to the aisle or up to the front of the auditorium; that he had to do whatever the writer demanded; that he had to sit down; that he had to return to his original seat; that he was afraid of the writer; that he dared not risk being hypnotized; that he was a noisy coward; that he was afraid to look at the volunteer subjects sitting on the platform; that he had to take a seat in the back of the auditorium; that he had to leave the auditorium; that he did not dare to come up on the platform; that he was afraid to shake hands in a friendly fashion with the writer; *that he did not dare to remain silent;* that he was afraid to walk over to one of the chairs on the platform for volunteer subjects; that he was afraid to face the audience and to smile at them; that he dared not look at or listen to the writer; that he could not sit in one of the chairs; that he would have to put his hands behind him instead of resting them on his thighs; that he dared not experience hand levitation; that he was afraid to close his eyes; that he had to remain awake; that he was afraid to go into a trance; that he had to hurry off the platform; that he could not remain and go into a trance; that he could not even develop a light trance; that he dared not go into a deep trance, etc.

The student disputed either by word or action every step of the procedure with considerable ease until he was forced into silence. With his dissents then limited to action alone and caught in his own pattern of contradiction

of the writer, it became relatively easy to induce a somnambulistic trance state. He was then employed as the demonstration subject for the lecture most effectively.

The next week-end he sought out the writer, gave an account of his extensive personal unhappiness and unpopularity and requested psychotherapy. In this he progressed with phenomenal rapidity and success.

This technique, either in part or *in toto,* has been used repeatedly in various modifications, especially with defiant, resistive patients, particularly the "incorrigible" juvenile delinquent. Its significance lies in the utilization of the patient's ambivalences and the opportunity such an approach affords the patient to achieve successfully contradictory goals, with the feeling that these derived out of the unexpected but adequate use of his own behavior. This need to meet fully the demands of the patient, however manifested, ought never to be minimized.

Another Technique of Utilization centers in a combination of utilization, distraction, and participatory activity, all of which are illustrated in the following account.

Example 11

Seven year old Allan fell on a broken bottle and severely lacerated his leg. He came rushing into the kitchen, crying loudly from both pain and fright and shouting, "It's bleeding; it's bleeding." As he entered the kitchen, he seized a towel and began swabbing wildly to wipe up the blood. As he paused in his shouting to catch his breath, he was told urgently, "Wipe up that blood; wipe up that blood: use a bath towel; use a bath towel; use a bath towel, a bath towel, not a hand towel, a bath towel," and one was handed to him. He dropped the towel he had already had and was immediately told urgently, repetitiously, "Now wrap it around your leg, wrap it tightly, wrap it tightly." This he did awkwardly but sufficiently effectively, whereupon, with continued urgency, he was told, "Now hold it tight, hold it tight; let's get in the car and go to the doctor's office and hold it tightly."

All the way to the surgeon's office careful explanation was given him that his injury was really not large enough to warrant as many stitches as his sister had had at the time of her hand injury. However, he was urgently counselled and exhorted that it would be his responsibility entirely to see to it that the surgeon put in as many stitches as possible, and he was thoroughly coached all the way there on how to demand emphatically his full rights.

At the surgeon's office, without awaiting any inquiry, Allan emphatically told the nurse that he wanted 100 stitches. She made no response, but merely said, "This way, sir, right to the surgery." As she was followed, Allan was told, "That's just the nurse. The doctor is in the next room. Now don't forget to tell him everything just the way you want it."

As Allan entered the room, he announced to the surgeon, "I want 100 stitches. See!" Whipping off the towel, he pointed at his leg and declared, "Right there, 100 stitches. That's a lot more than Betty Alice had. And don't put them too far apart. And don't get in my way. I want to see.

I got to count them. And I want black thread, so you can see it. Hey, I don't want a bandage. I want stitches!"

It was explained to the surgeon that Allan understood well his situation and needed no anesthesia, and to Allan the writer explained that his leg would first have to be washed. Then he was to watch carefully and notice the placing of the sutures to make sure they were not too far apart and that he was to count each one carefully and not to make any mistakes in his counting.

While the surgeon performed his task in puzzled silence, Allan counted the sutures and rechecked his counting, demanded that the sutures be placed closer together and complainingly lamented that he would not have as many as his sister. His parting statement to the surgeon was to the effect that, with a little more effort, the surgeon could have given him more sutures.

On the way home, Allan was comforted regarding the fewness of the sutures and adequately complimented on his competence in overseeing so well the entire procedure. It was also suggested that he eat a big dinner and go to sleep right afterwards so that his leg could heal faster, so that he would not have to go to the hospital the way his sister did. Full of zeal, Allan did as suggested.

No mention of pain or anesthesia was made to Allen at any time nor were any "comforting reassurances" offered. Neither was there any formal effort to induce a trance. Instead, various aspects of the total situation were utilized to distract his attention completely away from the painful considerations and to focus it upon values of importance to a seven year old boy and to secure his full, active cooperation and intense participation in dealing with the entire problem adequately.

In situations such as this, the patient experiences as a personality a tremendously urgent need to have something done. Recognition of this need and a readiness to utilize it by doing something in direct relationship to the origin of the need constitutes a most effective type of suggestion in securing the patient's full cooperation for adequate measures.

Example 12

To cite another similar illustrative example, when little Roxanna came sobbing into the house, distressed by an inconsequential (but not to her) scratch upon her knee, adequate therapy was not assurance that the injury was too minor to warrant treatment, nor even the statement that she was mother's brave little girl and that mother would kiss her and the pain would cease and the scratch would heal. Instead, effective therapy was based upon the utilization of the personality need for something to be done in direct relationship to the injury. Hence, a kiss *to the right*, a kiss *to the left* and a kiss *right on top* of the scratch effected for Roxie an instantaneous healing of the wound and the whole incident promptly became a part of her thrilling historical past.

This technique, based as it is upon the utilization of strong personality needs, is effective with both children and adults, and it can be adapted readily to situations requiring in some way strong, active, intense responses and participation by the patient.

These techniques of suggestive therapy, in one form or another, are in the repertoire of every experienced mother and they are as old as motherhood. Every experienced general practitioner employs them regularly without necessarily recognizing them formally as based upon suggestion. But with the development of clinical hypnosis, there is a need to examine into and to give recognition to those psychological principles that enable the communication of desirable understandings at times of stress.

Another type of Utilization Technique is based upon a process of conditioning behavorial manifestations and then interpolating into them new and corrective forms of behavior.

Example 13

An example of this is the therapy employed to correct the nightmares developed during convalescence by seven-year-old Robert, a traffic casualty, suffering from a skull fracture, brain concussion, fractured thighs and other varied injuries.

Upon his return home in a body cast from the hospital, he was noted almost nightly to suffer from nightmares. These followed essentially the same pattern each time. They began with moaning, followed by frightened crying, then shuddering sobs, and finally culminated with the frightened cries, "Oh, oh, it's going to hit me- it's going to hit me," followed by a shuddering collapse into silence and slow, shallow breathing, as if he had fainted.

Sometimes several nightmares would occur in a single night, sometimes only one, sometimes he would skip a night. He had no waking memory of these nightmares, and he disclaimed dreams.

Upon first noting the nightmares, an effort was made to arouse him from them, but the first few attempts were futile. When the lights were turned on in his bedroom, his eyes were found to be wide open, his pupils dilated, his face contorted in an expression of terror, and his attention could not be secured. When, however, he repeated his phrase of "It's going to hit me," his eyes would shut, his entire body would relax, and he would remain unresponsive as if in a faint for several minutes. Then he would seem to lapse into physiological sleep from which he could be aroused but with no memory of the nightmare.

When all these findings had been confirmed repeatedly, a technique was devised to secure his attention and to correct the nightmare. The approach to the problem was relatively simple and comprehensive and was based upon the assumption that the nightmares were essentially a distorted and disorderly, perhaps even fragmentary, reliving of the accident. Therefore, they could not be distorted or overthrown, but would have to be accepted and then modified and corrected.

The procedure was as follows: At the beginning of his nightmare, as his moaning began, Robert was told, in a cadence and tone that matched his outcries, "Something's going to happen—it's going to hurt you bad—it's a truck—it's coming right at you--it's going to hurt you—it's going to hit you—hit you— hurt you—hit you—hurt you awful bad." These utterances were matched with his outcries and were terminated with his collapse. In other words, an effort was made to parallel in time and in character the

inner subjective stimulation he was experiencing with external stimulation. In this way it was hoped to effect an association between the two types of stimulation and possibly to condition the one to the other.

The first night that the procedure was employed, Robert had two nightmares. The next night he again had two more. After a long wait and while he was sleeping peacefully, the procedure was employed again, and a third nightmare developed almost immediately.

On the third night, after he had been sleeping peacefully for some time and before a nightmare had developed, the procedure was deliberately employed twice. Both times a nightmare resulted, apparently in response to the procedure. A third nightmare was later elicited that night by the same procedure but with the addition of a new phrase that could possibly capitalize upon wishes and feelings without distorting the reality involved. This phrase was the statement that, "There is another truck on the other side of the street and that one won't hit you. It will just go right by." The reason for this type of interpolation was to employ an idea that would be entirely acceptable and yet would not alter the historical reality. Then, if accepted, the way would be paved for more pertinent interpolations.

The next night he developed a nightmare spontaneously, which was treated by the modified procedure. A second nightmare was deliberately induced later that night and handled by a still further modification of the procedure, the change being the addition of, "but you will get well, all well, all well."

Thereafter, night after night, but only when he developed a spontaneous nightmare, was this general procedure followed. His utterances and cries were matched, but each time with a progressive modification of the writer's utterances until the final content was nothing more than, "There's a truck coming and it is too bad it is going to hit you. You will have to go to the hospital, but that will be all right because you will come home, and you will get all well. And all the other cars and trucks on the street you will see, and you will keep out of their way."

As the change was made progressively in the statements said to him, the character and severity of the nightmares slowly changed and lessened until it seemed that Robert was merely rousing slightly and listening for the reassurance offered.

From beginning to end, a therapy of the nightmares covered a period of one month, and the last three were scarcely more than a slight seeming arousal from sleep, as if to assure himself vaguely of the writer's presence. Thereafter, to his present age of fourteen, he has continued to sleep well and without a recurrence of his nightmares.

The following Utilization Technique is one based upon the employment of seemingly inconsequential irrelevant considerations and an apparent disregard or oversight of the major issues involved. Following are two illustrative instances.

Example 14

A 70-year-old woman, born in a rural community, had not been allowed to attend school, since her parents did not believe in education for women. At the age of 14 she married a youth of 16, whose formal education was limited to his signature for signing checks and "figgering." The bride

was pleased with her husband's greater education and resolved to have him teach her, since she resented her lack of schooling. This hope did not materialize. During the next six years she was kept busy with farm work and pregnancies, but she did learn to "figger" excellently but only mentally, since it was apparently impossible for her to learn to write numerals. Neither was she able to learn to sign her name.

At the age of 20, she hit upon the idea of furnishing room and board for the local rural schoolteacher, with the intention of receiving, in return for reduced rates, the much desired instruction in reading and writing.

Each school year for the next fifty years she made and kept her agreement, and the teachers hopefully began the attempt and finally, some soon, others only after prolonged labor, abandoned the task of teaching her as hopeless. As the community grew, the number of teachers increased until she was boarding year after year a total of four. None succeeded, despite the sincerity of her desire and the honesty of their effort. Her children went through grade school, high school and college, and they too tried to instruct their mother but without results.

Each time she was a given a lesson, invariably she developed, after the manner of a seriously frightened small child, a state of mental blankness or a state of frantic disorganized efforts to please that led to a total impasse.

It was not that "Maw" was unintelligent. She had an excellent memory, good critical judgment, listened well, and was remarkably well informed. She often gave strangers, through her conversation, the impression that she had a college education, despite her faulty grammar.

At the time she was seen by the writer, she and her husband had been retired for some years, but she was still boarding teachers, three at that time. These three had made it a joint project for several months to teach her the elements of reading and writing but were finally forced to give up. They described her as, "It's always the same. She starts the lesson period full of enthusiasm and hope and that's the way you feel, too. But inside of a minute you'll swear that you must be talking a foreign language to her because she doesn't understand a thing you say or do. No matter what you say or do, she just sits there with those eager, troubled eyes, trying hard to make sense out of the nonsense you seem to be saying to her. We've tried everything. We've talked to some of our friends who have tried. She is just like a badly scared child who has blanked out completely, except that she doesn't seem scared but just blanked out. Because she is so intelligent, we just couldn't believe that she couldn't learn easily."

The patient herself explained, "My sons that graduated from engineering told me that I've got the right gears for reading and writing, but that they are of different sizes and that's the reason they don't mesh. Now you can file them down or trim them to size because I've got to learn to read and write. Even boarding three teachers and baking and cooking and washing and ironing for them ain't half enough work for me and I get so tired sitting around with nothing to do. Can you learn me?"

This history and much more comparable material suggested a long, persistent, circumscribed psychological blocking that might yield to hypnotic suggestion. Accordingly she was accepted as a patient with the rash promise that she would be reading and writing within three weeks' time, but *without being taught anything that she did not already know and had known for a long time.*

Although this declaration puzzled her greatly, so great was her desire

that she was easily persuaded to cooperate fully in every way with the writer. *even though he might not teach her anything except how to let her read and write which she already knew*

The next step was to induce by simple, direct suggestions, a light-to-medium trance, predicated in accord with her own unique neurotic needs, upon *her full understandings that it would be something apart from and completely unrelated to her learning problem, that there would be no effort to teach her anything she did not already know, that the trance would be employed only to let her do things she already knew how to do, and that everything undertaken would be something she had learned about a long time ago* With her responses to hypnosis contingent upon these understandings, it became possible to induce a trance and to instruct her to remain in it until otherwise instructed and to obey completely and without argument every instruction given her *provided that it was always something in relationship to things she had already learned a long time ago*

Thereupon paper and pencil were pushed toward her and she was instructed "*not to write* but just pick up the pencil any old way and hold it in your hand any old way You and I know you can do that Any baby can pick up a pencil in any old way

"O K Now make a mark on the paper, any old scribbling mark *like a baby that can't write makes* Just any old crooked mark! That's something you don't even have to learn

'O K Now make a straight mark on the paper, like you make with a nail when you want to saw a board straight or with a stick when you mark a row in the garden You can make it short or long or straight up and down or just lying down

'O K Now make a mark like the hole in a doughnut and then two marks like the halves of the doughnut when you break the doughnut in halves

'O K Now make two slanted marks, one like one side of the gable roof of a barn and the other like the other side

O K Now make a mark like a horse's crupper standing on the little end And now poke the pencil at the paper and make just a little spot

O K Now all those marks you made you can make different sizes and in different places on the paper and in different order and even one on top of the other or one next to another O K?

'Now, those marks that you made and can make again any old time [straight vertical, horizontal, and oblique lines, circles, semicircles, etc.] *are writing, but you don't know that it is writing You don't have to believe that it is writing* –all you have to do is know that you can make those marks and that isn't hard to know because you already know it Now I'm going to awaken you and do the same thing all over and I want you to practice at home making those marks O K?"

The procedure of the trance state was repeated with no additional elaboration in the waking state and with the same instructions She was dismissed, not entirely pleased but somewhat intrigued, with instructions to return the next day

A medium-to-deep trance was readily induced and it was learned that she had spent approximately two hours "marking marks!" The explanation was then offered her that the only difference between a pile of lumber to construct a house and the completed house was that the latter was the former "merely put together" To this she agreed wonderingly. She

was then shown a rectangle and told, "That's a rough plan of the side of a 40-foot barn." The rectangle was then bisected vertically and she was told, "Now it's a rough plan of two 20-foot long barns end to end." Still wondering, she agreed.

She was then shown a neat copy of the "marks" she had made the previous day and was asked to select those that could be used to make a small scale "rough plan" of the side of a 40-foot barn and to "mark out" such a plan. She was then asked to "split it in the middle" and then to "mark out one 20-foot side of a barn up on top of another one the same size." Bewilderedly she did so.

She was then asked to use the oblique lines to "mark out" the gable end of a roof and then one of the straight lines to "stretch halfway up from one side to the other like a scantling used to brace the end of the roof." Obediently she did so and she was emphatically assured that she now knew how to put marks together, but that she should take half of the doughtnut hole and use it repeatedly to "round off the corners of the side of the barn." This she did.

Thereupon she was emphatically instructed as an indisputable item of information that not only did she know how to write but the fact had been irrefutably established. This dogmatic statement puzzled her greatly but without diminishing her cooperation. Before she could organize any thoughts on this matter, she was peremptorily instructed to inspect the "marks" and "put them together in twos and threes in different ways."

With a little judicious maneuvering and indirect guidance on the part of the writer, it was possible to secure among the various "combinations" she made the complete alphabet printed in block form and with some of the letters formed in rounded fashion. These were carefully reduplicated on a separate sheet of paper. Thereupon, a newspaper advertisement, magazine advertisements and a child's textbook were brought out, and systematically it was pointed out that she, without recourse to a copying procedure, had printed each of the letters of the alphabet. She then was maneuvered into orienting her recognition of the letters not by comparing her printed letters with those in the book but by validating the letters in the book by their similarity to her own constructions. Great care was exerted to prevent her from losing this orientation. Her excitement, pleasure and interest were most striking. The entire procedure was then repeated in the waking state.

The next problem was to interest her safely in "letter building" and "word building" and the "naming," not reading each new construct. Each step was accomplished first in the trance state and then repeated in the waking state. No mention was made of writing or reading, circumlocutions being used. For example, she would be told, "Take some of these straight or crooked lines and build me another letter. Now build me a few letters along side of each other and *name* the word."

Then she was taught that "a dictionary is not a book to read; it is a book to look up words in, just like a picture book isn't for reading, it's just to look at pictures." With the dictionary she was enabled to discover that she could use vertical, horizontal, oblique or curved lines to "build" any word in it and great care was taken to emphasize the importance of "the right name for each word, just like you never forget the *correct* name for a harrow, a disk or a cultivator."

As a succeeding step, she was taught the game of anagrams which was described as entirely comparable to tearing down "the back porch and

using the old lumber to build on a new room with a kitchen sink." The task of "naming" the words became most fascinating to her.

The final step was to have her discover that "naming words is just like talking" and this was achieved simply by having her "build" words taken from the dictionary, apparently chosen at random but carefully selected by the writer and which she was asked to "set down here or there on this straight line." Since the words were not put down in correct order but were in correct spacing, the final result when she was called upon to "name" them astonished her. The words were, "Get going Ma and put some grub on the table." As she completed "naming" the words, she declared, "Why, that's what Pa always says—it's just like talking."

The transition from "talking words" to "reading words" was then a minor matter. Within three weeks' time she was spending every spare minute with her dictionary and a *Reader's Digest*. She died of a cerebral hemorrhage at the age of 80, a most prolific reader and a frequent letter writer to her children and grandchildren.

Example 15

The second instance concerns a nine-year-old girl who began failing all of her school work and withdrawing from social contacts. When questioned, she would reply either angrily or tearfully in a defensive fashion, "I just can't do nothing."

Inquiry disclosed good scholastic work in previous years, but poor adjustment on the playground in that she was inept, hesitant, and awkward. However, her parents were concerned only about her scholastic rating and sought psychiatric aid for their daughter from the writer.

Since the girl would not come to the office, she was seen each evening in her home. One of the first bits of information elicited was that she did not like certain girls because they were always playing jacks or roller-skating or jumping rope. "They never do anything that's fun." It was learned that she had a set of jacks and a ball but that she "played terrible." The writer challenged her, on the grounds that infantile paralysis had crippled his right arm, to the effect that he could play a "more terrible" game than she could. The challenge was accepted, but after the first few evenings a spirit of good competition and good rapport developed, and it was relatively easy to induce a light-to-medium trance. Some of the games were played in the trance state and some in the waking state. Within three weeks she was an excellent player, though her parents were highly displeased because of the writer's apparent lack of interest in her scholastic difficulties.

After three weeks of playing jacks, the writer declared that he could be worse on roller skates than she could be, since his leg was crippled. There followed the same course of developments as with the jacks, only this time it took only two weeks for her to develop reasonable skill.

Next she was challenged to jump the rope and see if she could possibly teach the writer this skill. In a week's time she was adept.

Then the writer challenged her to a bicycle race, pointing out that he actually could ride a bicycle well, as she herself knew. The statement was boldly made that he could beat her in a race and only her conviction that he would defeat her allowed her to accept. However, she did promise

in the trance state to try hard. She had owned a bicycle for more than six months and had not ridden it more than one city block.

At the appointed time she appeared with her bicycle but demanded, "You have got to be honest and not just let me win. You got to try hard and I know you can ride fast enough to beat me, so I'm going to watch you so you can't cheat."

The writer mounted his bike, and she followed on hers. What she did not know was that the use of both legs in pedalling constituted for the writer a serious handicap in riding a bicycle and that ordinarily only his left leg is used. But as the girl watched suspiciously, she saw the writer most laboriously pedaling with both feet without developing much speed. Finally convinced, she rode past to win the race to her complete satisfaction.

That was the last therapeutic interview. She promptly proceeded to become the grade school champion in jacks and rope jumping. Her scholastic work improved similarly.

Years later the girl sought out the writer to inquire how he had managed to let her excel him in bicycle riding. She explained that learning to play jacks and jump the rope and to rollerskate had had the effect of bolstering her ego immensely, but that she had had to discredit those achievements considerably because of the writer's physical handicaps. The bicycle riding, however, she knew was another matter.

She explained that at that time, she knew the writer to be a good bicyclist, and she was certain that he could beat her and that she had no intention of letting the race be handed to her. The fact that the writer had genuinely tried hard and that she had beaten him convinced her that she "could do anything." Elated with that conviction, she had found school and all that it offered a most pleasant challenge.

A definitely different type of Utilization Technique is one in which the general reality situation is employed as the essential component of the induction procedure. A basic consideration is a seemingly incidental or unintentional interference with the subject's spontaneous responses to the reality situation. This leads to a state of uncertainty, frustration, and confusion in the subject, which effects in turn a ready acceptance of hypnosis as a possible means of resolving the subjective situation. It is a combined utilization confusion technique and can be used experimentally or clinically on both children and adults. It is frequently a technique of choice, and sometimes it is very simply and rapidly accomplished, with shy timid children and with self-conscious adults. An illustrative instance is as follows:

Example 16

At a lecture before the professional staff of a hospital, a student nurse who had neither experienced nor witnessed hypnosis was authoritatively instructed by her superior to act as a "volunteer" subject for the writer. Although actually interested, she manifested definite resentment as she hesitantly came forward. Advantage was taken of her emotional state to employ

a utilization technique that would effect, first, a state of confusion to obviate resistance and, secondly, the ready induction of hypnosis

As she approached the front of the lecture room from a side aisle, a chair was moved somewhat ostentatiously into place for her When she was within six feet of the chair, she was asked, "Will you sit in *this* chair *here*?" As the word "this" was spoken, the writer's left hand was carefully placed on the back of that chair, as if to point it out As the word "here" was spoken, the writer gestured with his right hand, as if indicating a chair to the side of the actual chair There was a momentary pause in her behavior, but as she continued her approach, the chair was pushed gently toward her, causing a slight but definitely audible noise as it scraped on the floor As she came still closer to the chair, it was pulled slightly to one side away from her and immediately, as she seemed to note this, it was pushed back an inch or so, and then another inch or so forward and to the side toward her All of this she noted because the writer's left hand on the back of the chair constituted a focussing point for her gaze

By this time she had reached the chair, had turned and had begun to lower her body into it As soon as her knees were bent, the chair was rotated somewhat noisily about one inch and, as she paused again momentarily to turn her head to look at the chair, the writer took hold of her right elbow and moved it away from her body slightly and then a bit forward As she turned to look in response to this, her elbow was released and her right hand and wrist were gently taken and moved a little upward and then downward As she lifted her gaze from her elbow to her hand, she was told quietly, Just sit *all* the way down in the chair and as you do so, just close your eyes and go 'way deeply into the trance and as you continue to sit there, sleep over more deeply in a hypnotic trance' As she settled in the chair, the additional statement was made, "And now you can take a deep comfortable breath while I go on with my lecture Thereupon, without any further delay or training she was immediately employed to demonstrate the somnambulistic trance and many other phenomena of the deep trance She was awakened from the trance approximately an hour later

An aspect of the original reality situation constituting a part of the utilization technique was re-established by the measure of the writer, at the moment of awakening her, as in holding her right hand and wrist as he had been doing at the moment of trance induction. Accordingly, in awakening, she reverted at once to the original state of conscious bewilderment which had been interrupted by the rapid development of a deep trance This she demonstrated, along with a total amnesia for the events of the preceding hour, by stating, 'But you've got me so confused I don't know what to do Is it all right to sit this way, and what do you want me to do with my hand'" Reply was made, Would you like to go into a trance?" She answered, 'I don't really know I'm not sure I don't even know if I can be hypnotized I suppose maybe I could I'm willing to try if you want me to" She still had no awareness that she had been in a trance and that an hour had elapsed This amnesia continued to persist She was asked what she meant by saying that she was confused. "Well, when I started to come up here, you asked me to sit in this chair and then you started moving it first one way and then another and then somehow you started to move my arm and before I knew what you wanted, you started moving my hand and I'm still confused What do you want me to do?"

In this last question, the subject defines adequately the goal of a confusion technique, whether based upon direct suggestions eliciting variously oriented and contradictory responses from the subject or, as in this instance, upon a utilization technique employing various aspects of the reality situation. This goal is an urgent pressing need on the part of the subject to have the confusion of the situation clarified, and hence, the presentation of the suggestion of trance state as a definitive idea is readily accepted and acted upon. In this instance, she accepted at once the instructions, "Sit down," "Close your eyes," "Sleep deeply." These instructions dispersed for her all of the confusion she had been experiencing.

For this subject, as in other instances in which this type of technique has been employed, the utilization of the reality situation was of such character that she could formulate no subjectively adequate responses. This resulted in an increasing need to make some kind of a response. As this desire increased, an opportunity for response was presented to her in a form rendered *inherently appropriate and effective by the total situation.* Thus, the very nature of the total situation was utilized in the technique of induction.

To summarize, a number of differing special techniques of hypnotic trance induction are reported and illustrated by clinical and experimental examples. These methods are based upon the utilization of the subject's own attitudes, thinking, feeling, and behavior, and aspects of the reality situation, variously employed, as the essential components of the trance induction procedure. In this way, they differ from the more commonly used techniques which are based upon the suggestion to the subject of some form of operator-selected responsive behavior. These special techniques, while readily adaptable to subjects in general, demonstrate particularly the applicability of hypnosis under various conditions of stress and to subjects seemingly not amenable to its use. They also serve to illustrate in part some of the fundamental psychological principles underlying hypnosis and its induction.

3

Control in Brief Psychotherapy

Jay Haley[1]

A general discussion of brief psychotherapy will be offered here illustrated with some of the techniques of Dr. Milton H. Erickson.[2] Following a description of this style of psychotherapy, an attempt will be made to place it in a theoretical context by relating it to an interpersonal theory of symptoms

The Stages of Brief Psychotherapy

Brief psychotherapy, defined here as from 1 to 20 sessions of treatment, does not consist of doing less of what is done in long-term therapy but is different both in theory and in method from psychotherapy based on theories of intrapsychic processes Inevitably brief therapy is active and

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[1] Project for the Study of Schizophrenic Communication, directed by Gregory Bateson Staff consists of Jay Haley and John H. Weakland, Research Associates, Dr. Don D Jackson consultant Dr. William F Fry, consultant. The research project is financed by a grant from the Foundations' Fund for Research in Psychiatry, administered by the Department of Anthropology, Stanford University, and a grant from the National Institute of Mental Health, administered by the Palo Alto Medical Research Foundation, Palo Alto, Calif.

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[2] Dr. Erickson, who is in private psychiatric practice in Phoenix, is primarily known as a leading medical hypnotist. He has developed a special school of psychotherapy which has its roots in hypnosis although actual trance induction may not be used. This description of some of his methods might or might not agree with his own description. When reference is made to a case he has published, this will be noted; otherwise, the descriptions are based upon tape recorded personal communications.

directive since it is designed to produce therapeutic change in a minimum amount of time. Usually the approach is used with clearly defined symptoms. When it is applied to more vague "character" problems, these are defined in terms of specific, limited goals.

The Initial Interview

The brief-term therapist attempts to induce change from the moment of his first contact with a patient. In the initial interview, information gathering is combined with maneuvers to point the direction of change. The type of information wanted by the brief-term therapist is rather different from that wanted by a long-term therapist. There is less concern about the past history of an individual and more concern about the present circumstance of the patient and the possible current functions of his symptoms. Since this method does not involve bringing into a patient's awareness any connections between his past and present, there is no exploration of childhood.

The brief therapist must gain the information he needs quickly It would be convenient if patients were willing to offer all the necessary information at once, but they do not. In fact, they characteristically withhold information which is important to the therapist and they will do so even if they are asked not to withhold information. In brief therapy there is not time to wait out a patient, nor is there time or interest in discussing with the patient his resistances to revealing information. An Erickson technique to gain the information he needs is typical of his methods. He points out that the therapist wants the patient to talk under therapeutic direction, but since the patient is going to withhold, the therapist should take direction of that withholding too by either directly or indirectly suggesting that the patient withhold information. For example, Erickson may directly advise the patient that this is only the first interview and, of course, there are things the patient will be willing to say to him and things he will want to withhold, and he should withhold them. Usually the patient withholds them until the second interview.

Many people would feel that advising a patient to withhold information would encourage him to do so. This is not necessarily so with the typical psychiatric patient. Although patients may have a variety of reasons for retaining information about their problems, a major factor of such retention is the advantage it gives them in dealing with the therapist. As will be discussed later, psychiatric patients characteristically attempt to control what is to happen with the therapist and withholding information gives them some degree of control. The maneuver cannot be used successfully if the therapist directs the patient to behave in that way. Should the patient talk or withhold under those circumstances, he is conceding that he is following the therapist's directions.

The psychoanalytic therapist ostensibly uses quite the opposite approach when he tells the patient to say everything that comes to mind and withhold nothing. Apparently he is not encouraging the patient to withhold. However, when the patient inevitably does withhold information, he finds out that the analyst considers his withholding a necessary part of analytic treatment. The analyst indicates to the patient that his resistance to revealing information is necessary to the analytic process, and so the attempt by the patient to control what is to happen becomes labeled as occurring under the analyst's aegis.

An indirect suggestion that the patient withhold information is implicit whenever a therapist deals delicately with a patient who is inhibited in his offerings. By behaving delicately himself, the therapist is encouraging the hesitant patient to continue behaving in that way. Erickson describes such an approach as taking direction of the patient's inhibitions. For example, a woman came to Erickson with symptoms of choking and gagging which occurred usually shortly before bedtime and when people were telling off-color jokes. As Erickson puts it, the woman was demonstrating her inhibitions in the way she discussed this matter, so he also demonstrated inhibitions by assuring her he did not want to hear those jokes. At times he will even caution an inhibited patient that he is about to reveal something and perhaps he should not. Once the patient can rely on Erickson to protect the inhibitions, Erickson can then shift to a more open attitude and lessen the inhibitions. As this case of the woman suffering from hysterical gagging developed, Erickson used her inhibitions to produce a change. He accepted the woman's idea that she must not only undress in the dark but in another room than her bedroom. He then arranged that the woman "spontaneously" think of dancing into the bedroom in the dark when her husband could not see her. After all, she could do this in an inhibited way since the room was totally black. When she did this, she went to bed giggling. She could not be giggling and gagging and choking simultaneously, and so as she revised her attitude about inhibitions she also began to deal with her husband in other than symptomatic ways.

The difference between Erickson's way of maneuvering a patient and maneuvering a patient by waiting him out in long-term therapy can be illustrated with an example of a schoolteacher who came to Erickson and was unable to speak in the initial interview. Rather than interpret this as resistance, or wait until the patient provided the information he needed, Erickson complimented the woman on being able to communicate by nodding and shaking her head. He then suggested the possibility that she could write, and she nodded her head at this. Having noticed that the woman was right-handed, Erickson placed a pencil in her left hand. He then said to the woman, "How do you feel about that," and she began to talk, telling him that she feared she was going crazy and had been afraid to ask if this were so. Erickson points out that he arranged the situation so that the woman had to speak. She was communicating wrongly

by only nodding her head when she was able to verbalize, and so he placed the pencil in her left hand to arrange that she communicate wrongly. Since the woman was a teacher with years of experience with a pencil in her hand, this maneuver was particularly effective.

While gaining the information he needs, the brief-term therapist also begins immediately to establish a context of therapeutic change. Rather than first getting the information and then proceeding, the therapy begins with the way the information is gathered. For example, a history may be taken in such a way that the idea is established of progressive improvement occurring in the patient, if this is at all possible. The therapist then works within a context of continuing improvement. Quite the reverse situation may also be utilized. If a patient is indicating a consistent worsening of his situation, the brief-term therapist may accept this idea fully and completely and then follow it with the suggestion that since things have become worse and worse, it is certainly time for a change. The therapist then works within a context of highly motivated desire for a change.

The encouragement of a patient's commitment to a change is established as quickly as possible. Erickson was once asked what information he would want from a woman who entered therapy because she had lost her voice 4 years previously and was unable to speak above a whisper. "For brief therapy," said Erickson, "I would immediately pose her several questions. 'Do you want to talk aloud?' When? What do you want to say?' These questions are important because in answering them she is committing herself. The burden of responsibility is being put upon her shoulders. Does she really want to talk? Today, tomorrow, next year? What does she want to say--something agreeable or something unpleasant? Does she want to say 'yes' or does she want to say 'no?' Does she want to speak aloud expectedly or unexpectedly?"

When the patient discusses the circumstances under which she wishes to speak aloud, the groundwork is being laid for ways the change might occur. By dealing with *when* she wishes to talk, and whether she wishes to find herself talking unexpectedly, she is participating in establishing a premise of change. Once the patient can accept the premise that a change might occur, the therapist can work within a framework where each change experienced by the patient occurs as a part of a continuing progressive change.

Among the many ways to demonstrate in action the possibility of change to a patient is the use of direct hypnosis. Hypnosis was once discredited as a method of treatment with the argument that a patient might lose his symptom in trance, but it would return later and therefore only temporary relief could be achieved. Erickson considers this argument a misunderstanding of the best use of hypnosis. One does not use hypnosis to suggest away a symptom, but to establish a certain sort of relationship and to convince a patient that his symptomatic behavior can be influenced.

If a patient with a compulsion is hypnotized and his symptom alleviated while he is in trance, the therapist is not curing the patient but establishing the possibility of change under his direction. When the skillful hypnotist relieves a symptom in trance, he does not banish it but rather insists that it occur again later only under special circumstances. The change which was produced in trance is then extended outside of the hypnotic situation.

Erickson's work is replete with examples of relieving a symptom in trance and then suggesting that it recur later under controlled circumstances. For example, in cases of functional pain, he will accept the pain as real and necessary but shorten the time of it, change the moment of occurrence, shift the area in which it occurs, or transform it into a different sensation. He cites the case of a woman with incapacitating headaches which lasted for hours who now has one every Monday morning, when this is convenient. She suffers the headache for as long as a minute, sometimes for as long as 90 seconds, yet with time distortion she can subjectively feel that it lasted for hours if she wishes to (3).

Although pain is considered by the victim to be an involuntary affliction and, therefore, unchangeable, the possibility of change can be established with it as one would with other involuntary symptoms. Erickson may, for example ask a patient when he would prefer to have his pain. Would he prefer it in the daytime or the night-time, on a week day or on week ends? Would he rather have it severely for a short time and then be without it, or have it mildly all the time. As the patient grapples with the problem of when he would really prefer to have the pain, he is accepting the premise that his current pain program can undergo change.

Directing the Patient

Brief therapy is inevitably directive therapy. The patient must be persuaded to participate in bringing a change about In long-term therapy the patient may participate by attending regular sessions and expressing whatever comes to mind. In brief therapy he is asked to follow specific directions which involve him in a cooperative endeavor to change his symptomatic behavior. As Erickson puts it, the patient must be told to do something and that something should be related to his problem in some way.

When asked what he thought crucial to inducing therapeutic change, Erickson replied that he thought it was like teaching a child in school. It is not enough to explain to the child that 1 plus 1 equals 2. It is necessary to hand the child some chalk and have him write "1" and then write "1" again and make a plus sign and write "2." Similarly, it is not enough to explain a problem to a patient or even to have the patient explain a problem himself. What is important is to get the patient

to *do* something. Erickson points out that it is insufficient to have a patient with an oedipal conflict discuss his father. Yet one can give the patient the simple task of writing the word "father" on a piece of paper and then have him crumple it up and throw it in the wastebasket and this action can produce pronounced effects.

One of the difficulties involved in telling patients to do something is the fact that psychiatric patients are noted for their hesitation about doing what they are told. Yet Erickson deals with patients in such a way that they feel they must follow his suggestions. There would seem to be several factors involved in Erickson's success in getting suggestions followed. One factor is Erickson's sureness. He is willing to take full responsibility for a patient and his problems and also willing to indicate that he knows precisely what must be done. (However, he is also willing to be unsure if he wishes the patient to initiate something.) Often the patient will be encouraged to follow Erickson's suggestion in order to prove him wrong. Erickson also encourages patients to follow his directions by emphasizing the positive aspects of the patient's life so that they are pleased to cooperate with him. As is typical of most hypnotists, he puts tremendous emphasis on the positive. If a patient points out how he always tries and fails, Erickson will emphasize his determination and his ability to try. If a patient behaves passively, Erickson will point out his ability to endure situations. If a patient is small, he finds himself thinking about how fortunate it is to be small and agile instead of large and lumbering as he talks to Erickson. If a patient is large, his solidity and strength is emphasized. This emphasis on the positive is not mere reassurance but statements supported by evidence which the patient cannot deny. By being sure of what the patient needs to do, and emphasizing the positive aspects of the patient's behavior, Erickson makes suggestions in a context where they are most likely to be followed. Besides this context, he makes suggestions which the patient can easily follow and, in fact, emphasizes how the patient is doing this anyway.

Typical of Erickson's directives to patients is his accepting the patient's behavior, but in such a way that a change is produced. At the most abstract level, his directives can be seen as encouraging symptomatic behavior by the patient, but under therapeutic direction. He never, of course, tells the patient to cease his symptomatic behavior. Rather, he directs the patient to behave in a symptomatic way, at times adding something else to this instruction. Since the behavior occurs under therapeutic direction, it becomes a different sort than when it is initiated by the patient.

Typical of Erickson's directives to a patient is that given to a patient who came to him reporting that he was lonely and had no contact with other people. All he did was sit alone in his room and waste his time. Erickson suggested he should go to the public library where the environment would force him to be silent and not have contact with others. At the

library he should waste his time. The patient went to the library and, since he was an intellectually curious fellow, he began to idle away his time reading magazines. He became interested in articles on speleology, and one day someone at the library asked him if he was interested in exploring caves too, and the patient became a member of a speleological club which led him into social life.

What is typical about this example is the acceptance, in fact encouragement of the patient's symptomatic behavior, but the rearrangement of that behavior in a situation where a change is possible. The patient could hardly refuse to follow the directive, since he was only being asked to follow his usual routine of wasting time and avoiding contact with others.

Besides arranging that the environment produce a change, Erickson may also use the mere fact of *his* directing the patient to behave in a symptomatic way to produce a change in the symptom. For example, with one patient who weighed 270 lb. and was an expert on diets, Erickson instructed her to "overeat enough to maintain a weight of 260 pounds." The woman returned to the next session, having lost 10 pounds, and curious to see whether Erickson would have her overeat enough to lose 10 lb. again, or would it be 20 this time. He suggested she overeat enough to maintain a weight of 255 lb., thus suggesting a loss of only 5 lb. Such an approach offers satisfaction of the woman's need to overeat, her need to lose weight, and also her need to rebel.

The writer utilized this type of direction with a patient who was a free lance photographer and whenever he received an assignment he made some silly blunder which ruined the picture. As a result, he was so busy concentrating on avoiding errors in setting up his camera that he could not take a satisfactory picture. He was instructed to go and take 3 pictures suitable for sale to an architectural type of magazine, and each of these pictures was to be taken with a deliberate error. He could forget to close the back on one, set the shutter speed wrong on the next, or any errors which he was likely to make. The patient found it difficult to do this assignment, but he brought in three badly taken photographs and from then on had little difficulty with the technical side of his assignment. Symptomatic behavior under duress often produces marked change.

Besides directing a patient to do some activity, Erickson may also direct a patient to think of something related to his symptom, or to experience some sensation related to his symptom. Inevitably the patient must go through the symptomatic behavior, under direction, in order to think about it. Such a process is characteristic of any occurrence in therapy where the patient is directed to think about his symptom, including free association.

A common Erickson technique is to have the patient not only go through his symptomatic behavior, but also to add something to it as he does so. An example is offered here of a patient treated by me with this Erickson method. The patient was relieved of lifelong enuresis in 2 sessions.

The patient, a 17-year-old youth, was in psychotherapy for some months with a psychiatrist who was dissatisfied with his progress. The youth had entered therapy under duress from his parents and liked to be independent and not ask for help or discuss his problems. He had been wetting the bed all his life at least 50% of the time. He was referred to me for the relief of his enuresis with hypnosis while he continued his therapeutic sessions with the psychiatrist. The young man was elaborately casual about most things in his life, but intensely worried about his bedwetting. He wished to go away to college and he could not live in a dormitory with this embarrassing symptom. He proved to be an almost impossible hypnotic subject, and so he was led to agree both that he very much wanted to get over the symptom and that it made him feel helpless and childish. He was advised that if he were hypnotized and the symptom suggested away he would only be encouraged to feel more helpless, but he could easily get over the enuresis himself if he really wished to. When he said he did, he was asked what he considered a long walk. He suggested that 2 miles was indeed a long way to walk. He was then told that he should go to bed that night, and when he awakened during the night with a wet bed he should get up and take a 2-mile walk. Further, if he slept through the night and found his bed wet in the morning, he should set the alarm for 2 o'clock the next morning and get out of bed and take his walk. He was assured that if he followed this procedure with determination, he would rapidly get over his symptom without help from anybody. The youth went home, dutifully clocked 2 miles of distance with his car, and the first night he awakened with a wet bed he got up and got dressed and took his walk. He continued this procedure, and some time later he called the writer and said he was now wetting the bed only once every 2 or 3 weeks and was this as much as he could expect? He was advised to continue the regimen and he would get over his enuresis completely. A year later he was still not wetting the bed.

The relief of this symptom was accomplished by a method which is simple and apparently neglects those factors which long-term therapists consider most important. Obviously, the boy was involved in conflicts within himself and in an intense relationship with his parents over this bedwetting. He was also threatened with the possibility of leaving home and going away to school if he had no symptom, and so on. However, this method not only took into account his desire for independence and self-help, but it was the kind of arrangement which was difficult enough that he would not go through with it unless he was willing to give up his symptoms and replace it with a feeling of pride in accomplishment.

Although this method is simple, it can be applied to a variety of kinds of problems. Erickson reports a case of a 65-year-old man who was suffering from insomnia. The patient had been taking 45 grains of sodium amobarbital (Amytal) nightly and still could get only an hour or two of sleep. When he asked for an increase, his physician became frightened at the addiction and referred him to Erickson. Judging him to be both honest and determined, Erickson told him he could recover from his insomnia easily if he was willing to give up 8 hours of sleep. The old gentleman

was willing to make that sacrifice. Erickson had learned that the man lived alone with his son, and that he did not like to do housework. He particularly did not like to wax the floors because he objected to the smell of floor wax. Erickson instructed the patient to go home and prepare for bed by putting on his pajamas at his usual time of 8 o'clock. However, instead of going to bed he was to get out a can of floor wax and polish the hardwood floors all night. At 7 in the morning he was to stop, have breakfast, and get ready for his usual day's work. The next night, after working all day, he was to repeat this procedure and polish the floors all night again. The third and fourth night he was to do the same, and at the end of that time he would only have given up eight hours sleep since he was only sleeping 2 hours a night anyhow.

The patient went home and dutifully polished the floors the first night, the second night, and the third night. The fourth night he said to himself, "I'm so weary following that crazy psychiatrist's orders, but I suppose I might as well polish again tonight since I still owe him 2 hours sleep." Then he decided that he would lie down and rest his eyes for just half an hour. He awakened at 7 the following morning. That night he was in a dilemma: Should he go to sleep or spend the night polishing the floor as he had promised. He decided to go to bed at 8 o'clock, and if he could read the clock at 8:15 he would get up and polish the floors all night. A year later he was still sleeping soundly every night. He reports that he does not dare suffer from insomnia since if he does not fall immediately asleep he must spend the night polishing floors. As Erickson describes the case, "You know the old gentleman would do anything to get out of polishing the floors even sleep."

Although this method must be designed for the individual patient, in general it involves committing the patient to wanting to give up his symptom, drawing him out on some activity which he does not like (but preferably feels he should accomplish), and persuading him to go through with the activity as directed. In another case Erickson had the patient spend the nights reading those books he had put off reading, and since he might fall asleep reading them he was to stand up at the mantle and read all night. The cure involves the patient accomplishing it himself and thereby gaining respect for himself.

In both of these cases, the emphasis is apparently upon the patient's activity other than his symptomatic behavior. However, the instruction to the enuretic youth was that he was to take his walk *when* he wet the bed, and in this sense his bedwetting came under the direction of the therapist as well as his self-punishment for bedwetting. Similarly, when the old gentleman is told by Erickson to stay awake and polish the floors, he is being told to behave in a symptomatic way by staying awake at night instead of going to sleep.

At times, Erickson's directive to a patient may include not only going

through his symptomatic behavior with an additional suggestion, but that additional suggestion may be put in such a way that the patient does not know he is receiving it. For example, Erickson once suggested to a woman who had weekly recurrent headaches that she carefully study her headache that week in case a month from then she should want to alter it. He points out that this suggestion is actually a suggestion that she skip 3 weeks of headaches. Just as he is an expert at getting over suggestions indirectly to hypnotic subjects, Erickson also likes to direct patients in such a way that they cannot recognize they are being directed and so cannot resist the directive. At times he may do this by dropping a casual comment, at other times he may arouse the patient emotionally on one topic and then mention another apparently unrelated topic at that moment. The patient will "unconsciously" connect the two topics.

Another way which Erickson will use to get over a suggestion indirectly is to tell anecdotes to patients. These anecdotes may be experiences of his own or experiences with previous patients. Often they will include an idea which the patient can recognize and defend himself against, but while defending himself against that idea he is accepting others which encourage change.

Similarly, Erickson may persuade a patient to accept a suggestion by making it seem quite minor in nature. He will introduce a cumulative change but base it upon so small a change that the patient can accept it. He may ask a patient with insomnia to report to him next time that he believes he slept 1 second longer one night. No matter how extreme the patient's protests that he rarely sleeps, he is still willing to concede so small an improvement. The groundwork is then laid for further improvement. Should a therapist ask immediately for a larger change with certain patients, he is likely to find himself doing long-term therapy.

Erickson may also bring in the relatives of a patient to enlist their cooperation in producing a change. Since most symptoms are imbedded in a relationship, a change can often be worked more rapidly by working with an intimate relative of the ostensible patient.

The Hypnotic Relationship as a Model for Psychotherapy

Sigmund Freud once suggested that if the general population was ever to be reached with psychotherapy it would be with hypnosis. Typically, discussion of brief methods of psychotherapy include some aspect of hypnosis as a major factor. The techniques of Erickson which have been discussed here have developed out of his orientation in hypnosis. It would seem appropriate to consider the formal similarities between hypnotist—subject and psychotherapist—patient, not with the idea of hypnosis as a method of

cure, but with the idea that it can be a model for therapeutic types of relationships.

There are many formal similarities between psychotherapy and the hypnotist-subject relationship. In both situations, 1 person is attempting to influence the behavior, perception, and emotions of another. Both therapist and hypnotist work with people who have requested their services and so deal with them within a framework of voluntary association. Both situations consist essentially of a conversation between the 2 people. The changes the patient and subject undergo in their behavior, somatic sensations, and perception may be confined to the period of trance with hypnosis or they may extend beyond, and presumably the changes in psychotherapy extend beyond the time of the conversations.

A particularly important similarity between the 2 situations rests in the fact that attempts by a hypnotist to influence a subject may be met by resistances which are essentially similar to the resistances offered by a patient to a psychotherapist. The intensity of the relationship between hypnotist and subject and psychotherapist and patient rests upon the fact that both relationships sharply focus upon one of the most important questions in human life: How much influence will one person permit another to have over him?

If one examines all methods of psychotherapy at the most general level, a similar pattern can be seen. The patient is first persuaded that a positive change in himself might occur. He does not need to believe that it is inevitable, but that it might occur. The patient then participates in bringing the change about. This participation may include following a directive therapist's instructions, taking a journey to Lourdes, free associating daily in an analyst's office, and so on. Finally, the patient begins to look for and notice changes when they do occur.

If this process is translated into more interpersonal terms, it can be said that a patient is first persuaded that a therapist might influence him, he then participates in helping the therapist influence him, and he finally acknowledges, if only to himself, that he is not functioning entirely on his own terms. These steps are also the stages in the induction of hypnotic trance.

The Process of Trance Induction

A hypnotist establishes the possibility of a subject going into trance in a variety of ways. He may merely have sufficient prestige or position so the subject expects to be easily hypnotized. He may discuss hypnosis with the subject and indicate that a trance is easy to achieve, that it often occurs in everyday life, and offer similar reassurances which ostensibly relieve fears in the subject but also establish the easy possibility of trance. The

hypnotist then enlists the subject's participation in bringing the trance about. Typically he does this by asking the subject to voluntarily behave in a certain way. He may ask him to sit down and put his hands on his knees, or to concentrate on a light, or to think of some image, or to do any activity he can voluntarily do. After that, the hypnotist asks the subject to do something "involuntarily." That is, he asks the subject to do something which the subject cannot deliberately do. This request may involve the lifting of a hand without deliberately lifting it, as in hand levitation, or a tiredness of the eyelids and the closing of them, or the involuntary stiffening of an arm, and so on. A "trance" is said to have been induced at the moment the subject behaves in some way, while indicating this behavior is involuntary.

The "good" hypnotic subject will put his hands on his knees without hesitation when he is asked to do so. When asked to permit a hand to lift but not lift it, he will levitate a hand with an indication that he is not lifting it. He will follow the hypnotist's directions and indicate that what happens between them is within the hypnotist's control but not within his own control. At a certain point in all hypnotic inductions, the point of who is in control is made explicit: The hypnotist "challenges" the subject to try to resist him. When the subject cannot behave differently than he has been instructed to behave, he can experience a variety of somatic, emotional, and perceptual changes when they are suggested by the hypnotist.

When traditional techniques of hypnosis are used, the hypnotist is clearly directing the subject, and the subject is clearly following directions. However, Erickson has pioneered in a variety of indirect methods of trance induction with his naturalistic techniques (2), and as a result the line between a hypnotic relationship and some other influencing relationship has become quite vague. Erickson may, for example, induce trance behavior in a subject by having what appears to be a general conversation with him. He may also begin a long monologue which the subject finds tedious and wonders when he will get to the point, but interspersed in the monologue are certain phrases given certain emphasis which produce trance behavior in the subject. Erickson may also induce a trance by *not* doing something under circumstances where something is expected of him. He may arrange a situation where a subject is to be hypnotized, and then merely say and do nothing while the subject fills the vacuum with trance behavior. When hypnosis is broadened to include indirect as well as direct methods of trance induction, questions are raised about the hypnotic nature of other types of relationship where one person is attempting to influence another. The definition of hypnosis then shifts from a description of a supposed state to a description of responsive behavior. The responsive behavior of a subject is in some ways formally similar to behavior of other people in other situations. The similarity between the responsive behavior of a resistant subject and a person exhibiting symptomatic behavior is particularly striking.

A hypnotist always meets some degree of resistance in a subject, and dealing with resistance is central to trance induction. The resistant subject may, at one extreme, be too cooperative and at the other he may be uncooperative. If he is too cooperative, the hypnotist requires that he try to resist him by "challenging" him. If he is uncooperative, other methods are used. Typically, the resistant subject who is asked to put his hands on his knees will do so with some indication that he is doing it in his own way in his own time. Often he will not do something, or partially do it, and be surprised if this is pointed out to him. Or he may be asked to sit still and yet move nervously about while insisting he cannot help himself. The resistant subject does not directly refuse to follow suggestions or the hypnotic induction would be over. He does not follow suggestions, but he indicates that he cannot help himself.

Techniques of handling the resistant subject have been discussed by Erickson more fully than by any other hypnotists. Essentially the way he recommends handling a resistant subject is to accept the resistance and even encourage it. He calls this a "Utilization Technique" (4) in the sense that he is utilizing the behavior offered him by a subject. For example, a patient came to Erickson for hypnotherapy and immediately began pacing up and down as he entered the office. He reported that he could not sit down but had to pace up and down and, therefore, he had been discharged by various psychiatrists as uncooperative. While he paced the floor and repetitiously explained this, Erickson said, "Are you willing to cooperate with me by continuing to pace the floor as you are doing now?"

The patient replied, "Willing? Good God, man! I've got to do it if I stay in the office."

Erickson then asked the patient if he could participate in his pacing by partly directing it. The patient agreed, and Erickson suggested that the patient pace over here, and then pace back and forth over there, and so on. After a while, Erickson began to hesitate in his directions, and the patient began to pause in his pacing and wait for them. Then Erickson seated the patient in a chair where he continued to go into a trance.

There are 2 major steps involved in this method: Erickson first asks the subject to do what he is already doing to resist him, and so do it under his direction. Then he begins to shift the patient's behavior into more cooperative activity until the patient is fully following his directions.

Erickson may accept a patient's resistance in a variety of ways. He may, for example, accept the patient's resistance in that chair, and then suggest the patient move to another chair, thereby identifying the resistance geographically and separating it from the patient. He may also accept the resistance as occurring at this time, but not at some other time. He may also permit a subject to defeat him in order to later induce a trance. With one woman he attempted a method of induction which he knew would fail, and he then apologized to the woman for using that technique

with her. In the discussion of his inadequacy she went into a trance. As he pointed out, the woman needed to defeat him, but she also wanted a trance, and by letting her defeat him first, she could have both.

These various ways of handling resistance become relevant to Erickson's psychotherapy when it is seen that he utilizes similar techniques for handling symptomatic behavior by a patient. For example, a woman came to him for help in losing weight who had tried every form of diet and medical treatment. She could lose the weight, but she immediately gained it back again. In fact, the moment she dieted until she reached the chosen weight, she was compelled to rush for food and eat compulsively until she was overweight again. Erickson asked the woman if she was willing to lose weight in a way that met her personality needs, and she agreed. He then instructed her to go out and gain from 15 to 25 lb. While she was gaining this weight she could organize her thinking to be prepared to lose weight. The woman gained a few pounds and then became most reluctant about gaining more. Yet Erickson insisted she gain more. He finally compromised when she had gained 20 lb. and *permitted* her to stop gaining weight. She then went on a diet, lost the weight she wanted to lose, and has continued to maintain a low weight.

In this example Erickson deals with the patient's compulsion to eat in ways similar to the ways he deals with resistant subjects. He accepts her need to gain weight and even encourages it, but under his direction. She must then wait for further direction from him, and at a certain point he provides a shift. He also utilizes a typical pattern of the woman: She usually loses weight and then gains it, and he has her gain weight and then lose it.

In Erickson's case histories a formal pattern appears in case after case despite his diverse methods. He gains control of a patient's symptomatic behavior by accepting it, and then he shifts his direction. In brief form, this method may illustrate the essential interpersonal context of any therapeutic change.

The Function of Symptoms

The type of therapy which anyone devises will be based upon some implicit or explicit theory of human psychopathology and the processes of change. Therapists who see symptoms as a product of conditioning will seek methods of therapy which emphasize deconditioning (7). If symptoms are seen as a product of repressed ideation, then the therapy will be geared to bringing into awareness repressed ideas. If symptoms are seen as a method of dealing with other people, then the therapist will seek to devise means of preventing the use of symptomatic methods and encouraging the patient to develop other ways of dealing with his relationships.

Although Erickson has never described in detail his theories of psychopathology, it would seem apparent from his methods that he is more concerned with interpersonal involvements than with intrapsychic processes.

The methods of brief psychotherapy which have been discussed here do not include tracing ideas back to childhood nor liberating repressed ideas, and so therapists with the intrapsychic point of view will feel they cannot produce real change. Yet it is possible to argue that the various methods of psychotherapy, including psychoanalysis, have in common a particular kind of interaction between therapist and patient and it is this interaction which produces therapeutic change rather than awareness or unawareness on the part of the patient. To present this point of view it is necessary to describe patients who develop specific symptoms from the point of view of interpersonal involvements rather than in terms of their defenses against repressed ideas.

To illustrate the difference in point of view, we can examine a classic case of hand-washing compulsion. A woman sought therapy because she was forced to ritually wash her hands many times a day and compulsively take showers. Although she might feel driven to wash her hands at any time, she particularly did so if she was exposed to any type of poison, even household ammonia. From the intrapsychic point of view her ritual washing could be seen as a defense against various kinds of ideas, including murderous impulses toward her husband, children, and herself. Her productions would support such interpretations as well as notions that her compulsion was related to a primal scene incident because of the way she described sleeping in her parents' bedroom as a child. If her case were written up from the classic point of view, she would be described in terms of her history, her fantasies, her guilts, and so on. If her husband were mentioned, it would probably be only a passing statement that he was understandably unhappy about her compulsion. It is improbable that her husband would be seen by a therapist with a focus upon intrapsychic problems.

However, in this case her husband was brought into the therapy and an examination of the interpersonal context of her hand washing revealed an intense and bitter struggle between the patient and her husband over this compulsion. The couple was of German origin, recently emigrated to the United States, and the husband insisted upon being tyrannical about all details of their lives. He insisted on his own way and wanted his wife to do what he said and do it promptly. However, he was unable to have his own way about the handwashing and the struggle was constant and distressing. The husband regularly, and benevolently, forbade her to wash her hands; he followed her around to make sure she was not washing them; he timed her showers; he hid the soap and rationed it to her. When he had been away, his greeting included a query about her handwashing. He even pointed out that if she loved him she would stop this

washing compulsion, so that when she was angry at him she could express her dislike by washing her hands.

Although the wife objected to her husband's tyrannical ways, she was unable to oppose him on any issue - except her handwashing. She could refuse to do as he said in that area because she could point out it was an involuntary compulsion. However, as a result of the handwashing she actually managed to refuse to do almost anything he suggested. If he wanted to go somewhere with her, she could not because she might be exposed to some poison. He insisted on a spotlessly clean house, but she could not clean the house because she was busy washing her hands. He liked the dishes done neatly and promptly, but she had difficulty with the dishes because once she put her hands in water she was compelled to go on washing them. Although her husband insisted upon always having his own way and being master in the house (of course, his wife was supporting him financially), he was dethroned by the simple washing of a pair of hands.

It would be possible to dismiss this interpersonal aspect of the woman's symptom as mere secondary gain and confine therapy to bringing into her awareness her repressed ideas. A person with such an approach would assume that as the woman discovers the genesis of her symptom, her compulsion will lessen, and as she washes her hands less her husband will be happier with her. There are several difficulties with this rather naive point of view. For one thing, when the woman enters therapy she may gain some awareness of what is "behind" her symptom, but she is also going to be intensely involved with a therapist whose goal is to get her over the problem of compulsive washing with all the implications of a lifetime of people trying to do just that. The therapist may insist that he is concerned with the ideas behind the symptom and he is not attempting to prevent her washing her hands, but the context of the relationship is the premise that he is going to help her get over this problem. It is a decidedly open question whether improvement will come to her from ideas coming into her awareness or the fact that she cannot deal with the therapist by way of her symptom as she has with her husband and with others, since the therapist declines to openly oppose the compulsion.

A further difficulty in the intrapsychic focus is the assumption that her husband will be happier if she improves. There is a gathering amount of evidence that when a patient improves, the mate becomes disturbed and begins to behave in ways which negate the improvement. A symptom can be seen not only as a way a patient deals with someone else, but also as part of an arrangement which is worked out in implicit collaboration with other people. In this case the husband and wife had built their relationship around the wife's compulsion; in fact, they were unable to fight about any other issue. Further, they had worked out the agreement that she was the sick one and whatever went wrong in the family it

could be blamed upon her and her compulsion. Should this woman receive some "insight" into her internal conflicts about the symptom, she would still be faced with giving up a way of life and a way of dealing with her husband if she were to give up her symptom. Of course, the symptom can be seen not only as a rather desperate way of dealing with her husband, but also as a method of protecting him from facing his own problems and the other difficulties in their marriage.

The type of people who develop specific symptoms are a special class in the sense that they deal with other people in an essentially similar way no matter what the symptom. The patient's behavior becomes classifiable as symptomatic when it goes to any extreme and is simultaneously defined as involuntary. The patient who cannot touch a doorknob and so is considered phobic is at the extreme of the other patient who must touch a doorknob 23 times before turning it and so is classified as compulsive. What they have in common is the way they label their behavior as something they *must* do. Similarly, some patients cannot stop concentrating on an idea day after day, while others cannot concentrate on anything for a second. Some cannot leave the house without fear and trembling, while others cannot stay home but must rush outside. Some insist that everyone is watching them, others complain that no one pays attention to them. Some cannot move a limb, others cannot stop a limb from trembling. Some cannot eat and others spend their days unable to stop gorging themselves. All of these kinds of symptoms are labeled by the patient as involuntary, and in their history these types of patients have been offered help or advised to stop behaving as they do by friends, relatives, and others, but such aid is resisted with the statement that the symptom is beyond control. Since the patient's extreme behavior provokes extreme responses in those with whom he is intimately involved, the patient tends to develop a network of relationships which constantly reinforce his behavior and consequently his feelings of distress.

From the point of view offered here, the crucial aspect of a symptom is the advantage it gives the patient in gaining control of what is to happen in a relationship with someone else. A symptom may represent considerable distress to a patient subjectively, but such distress is preferred by some people to living in an unpredictable world of social relationships over which they have no control. A patient with an alcoholic wife once said that he was a man who liked to have his own way but his wife always won by getting drunk. His wife, who was present in the therapy session, became indignant and said she won nothing but unhappiness by her involuntary drinking. Yet obviously she did win something by it. In this case she won almost complete control of her relationship with her husband. He could not go where he wanted because she might drink; he could not antagonize her or upset her because she might drink; he could not leave her alone (unless he could encourage her to pass out)

because of what she might do when drunk: and he could not make any plans but had to let her initiate whatever happened. In other words, she could bring him to heel merely by picking up a glass. She might suffer distress and humiliation and even provoke her husband to beat her, but *she* provoked those situations and thereby controlled what was to happen. Similarly, her husband could provoke her to drink at any time, either by exhibiting some anxiety himself or forbidding her drinking. Each partner must make a contribution to perpetuating the symptom and each has needs satisfied by it. However, they both have other needs and although the symptom may work out as a compromise, it tends to be an unstable one. Yet when the wife goes to a therapist, she is immediately threatened by the same situation she has with her husband– how much control is she going to let someone else have over the relationship with her?

Although psychotherapy involves many factors, such as support, encouragement of self-expression, education, and so on, it is of crucial importance that the therapist deal successfully with the question of whether he or the patient is to control what is to happen in their relationship. No form of therapy can avoid this problem. If the patient gains that control, he will perpetuate his difficulty, particularly if he gains it by his usual symptomatic means. If one describes successful therapy as a process whereby the therapist maintains control of what sort of relationship he will have with a patient, then it becomes necessary to consider the tactics necessary for one person to gain control of another person's behavior and therefore his emotions and somatic sensations. The approach offered here has emphasized how the hypnotic relationship is a useful model for the exploration of such tactics (8).

Theory and Method

It would appear to follow logically that Erickson would develop a school of psychotherapy which would draw upon his experience in dealing with resistant hypnotic subjects. The attempt to change the behavior, perception, or sensations of a normal person with hypnotic techniques inevitably suggests ways of changing the behavior, perception, or sensations of people suffering with neurotic problems. When the resistance and the cooperation of the hypnotic subject are seen as factors in the relationship with the hypnotist, then symptoms in neurotic individuals can be seen as ways of dealing with the therapist and with other people. An obvious similarity exists between the patient who "involuntarily" circumscribes both his own and other people's behavior and the resistant hypnotic subject who "involuntarily" will not respond on the hypnotist's terms. Although neither hypnotist nor therapist would ever concede to a patient that a contest is involved,

inevitably there is a contesting process over how much influence the subject or patient will let another person have over him. There is going to be a struggle, which may never be labeled as such, over who is going to determine what is to happen between the two people. However, neither hypnotist nor therapist is likely to be merely authoritarian and insist they are in charge or they will be defeated in their endeavor. The patient or subject has only to refuse to do what they say to provoke them and thereby control what happens. Both hypnotist and therapist must circumscribe the subject's behavior in a permissive way. This permissiveness may be active or it may be the silence of psychoanalysis. It is at the point where permitting symptomatic or resistant behavior shifts to encouraging such behavior that the control of the relationship comes into the hypnotist's and therapist's hands.

When a hypnotist encourages a subject to resist him, after asking the subject to cooperate with him, the subject is in a peculiar situation and cannot easily gain control of what is to happen. If the subject resists, he is doing what the hypnotist asks, and if he cooperates he is doing what the hypnotist asks. He must follow the hypnotist's direction no matter what he does and so he cannot gain control of the relationship. Similarly, if a therapist encourages a patient to deal with him by symptomatic means, within a framework of helping the patient give up his symptomatic means, the patient cannot help doing as the therapist directs. If the patient continues with his symptoms, he is conceding that he is following therapeutic directions; if he ceases his symptomatic behavior, he is conceding that he is following the therapist's direction since this is the larger goal of the therapist. If one describes symptoms as the ways the patient has learned to circumscribe the behavior of others, he is unable to use these means if the therapist is directing him to do so. Different types of therapy can be defined as different methods of direction by the therapist. The psychoanalytic therapist encourages the patient to behave in symptomatic ways by directing him to lie down on the couch and say whatever he wishes, while the analyst maintains a permissive silence. Since the patient deals with others by means of symptomatic behavior, he inevitably will offer such behavior when he is asked to say whatever he wishes. In this sense, his symptomatic behavior occurs at the direction of the analyst. For example, although this is a crude oversimplification, it is clear that if a patient's symptom is constant complaining about his lot and he is asked to lie down and say whatever comes to mind, he will be complaining at the behest of the psychoanalyst (5).

The brief therapy of Erickson can be seen as formally similar—he might help the complaining patient complain in a more effective manner, thus encouraging the behavior but under his direction.

The stages of brief therapy which have been described here all involve taking direction of the patient's behavior. In the initial interview, en-

couraging the patient to talk and suggesting that he withhold information results in directing both what he says and what he does not say. Specific instructions to a patient typically involve asking the patient to do something he is doing anyway, but to do it under direction and, therefore, change the character of the activity. Usually these directions involve a shift to a higher level of abstraction: The patient who is punishing himself *with* some distressing symptom may be asked to punish himself *for* treating himself badly with the symptom. In this procedure, the therapist is accepting the patient's need to punish himself but changing the purpose and result of the punishment. In addition, to go through with the punishment on instruction, the patient must go through with the symptomatic behavior he is punishing, and so the symptom comes under the direction of the therapist. Similarly, the therapist takes control of the symptom when he requests that the patient exhibit it at a different time than usual or in a different context or for a different purpose. If the therapist thinks the patient is likely to relapse, he may also suggest such a relapse and the conditions for it so that relapsing, if it then occurs, becomes part of a cooperative endeavor rather than resistance by the patient. The basic rule of brief psychotherapy would seem to be to encourage the symptom in such a way that the patient cannot continue to utilize it.

Throughout these illustrative cases it has been evident that "insight" is not involved in this method of treatment, nor are there transference interpretations or connections made between the patient's past and present life. The therapist may see a variety of kinds of intrapsychic or interpersonal data which he does not reveal to the patient. His goal is to bring about a change in the patient, not to focus the patient on his mental or emotional structure. The therapist may also terminate the patient while still aware of other problems the patient may have. His goal is to produce a rapid change in one aspect of a patient in such a way that progressive change will occur in other aspects of the patient's life after therapy has terminated. When the therapist is successful, the patient is "normal" in the sense that he has as little concern with insight as the general population and is dealing with other people in ways that bring him more satisfaction. The emphasis here has been on a few of Erickson's methods of dealing with specific symptoms in a brief way, with the emphasis on the way he gains control of a patient's behavior and a neglect of other aspects of his treatment methods.

V. ADDITIONAL TOPICS

1

Comments on Visions in Sane Persons



Francis Galton

In 1881 I gave one of the Friday Evening Lectures at the Royal Institution on the Visions of Sane Persons, in which I dwelt on the far greater frequency than was supposed, of hallucinations and illusions among individuals in normal health, as ascertained through numerous inquiries verbally or by letter. It very often happened that the verbal reply to my question took a form like this, "No, no; I've never had any hallucination"; then, after a pause, "Well, there certainly was one curious thing," etc. etc.

One afternoon at tea-time, before a meeting of the Royal Society, Sir Risdon Bennett (1809 1891), a well-known physician, President of the College of Physicians in 1876, and a Fellow of the Royal Society, drew me apart and told me of a strange experience he had had very recently. He was writing in his study separated by a thin wall from the passage, when he heard the well-known postman's knock, followed by the entrance into his study of a man dressed in a fantastic medieval costume, perfectly distinct in every particular, buttons and all, who, after a brief time, faded and disappeared. Sir Risdon said that he felt in perfect health; his pulse and breathing were normal, and so forth, but he was naturally alarmed at the prospect of some impending brain disorder. Nothing, however, of the sort had followed. The same appearance recurred; he thought the postman's knock somehow originated the hallucination.

I begged him to publish the curious case fully with his name attached, as it would then become a classical example, but he hesitated; however, he did ultimately publish it at some length in a medical paper, but signed only with his initials. I wholly forget its date. If any reader interested in these things should come across the paper, these imperfect but vivid

Selection from F. Galton, *Memories of my life*. New York: Dutton, 1909. Pp. 273–278.

recollections of mine may corroborate such impressions as he would have of its veracity, for I heard the story at length, very shortly after the event, told me with painstaking and scientific exactness, and in tones that clearly indicated the narrator's earnest desire to be minutely correct. I purposely omit many details, doubting the accuracy of my own memory in those respects. There can be no impropriety now in publishing the name hitherto withheld.

I gave in the lecture many examples of guiding "stars" and the like, and referred to the fact that the visionary temperament has manifested itself largely at certain historical times, and under certain conditions of national life, and endeavoured to account for this by the following considerations:—

That the visionary tendency is much more common among sane people than is generally suspected.

In early life it seems to be a hard lesson for an imaginative child to distinguish between the real and the visionary world. If the fantasies are habitually laughed at and otherwise discouraged, the child soon acquires the power of distinguishing them; any incongruity or nonconformity is quickly noted, the fact of its being a vision is found out; it is discredited, and no further attended to. In this way the natural tendency to see visions is blunted by repression. Therefore, when popular opinion is of a matter-of-fact kind, the seers of visions keep quiet; they do not like to be thought fanciful or mad, and they hide their experiences, which only come to light through inquiries such as those I have been making. But let the tide of opinion change and grow favourable to supernaturalism, then the seers of visions come to the front. It is not that a faculty previously non-existent has been suddenly evoked, but that a faculty long smothered in secret has been suddenly allowed freedom to express itself, and it may be to run into extravagance owing to the removal of reasonable safeguards.

The following experiments on Human Faculty are worth recording; they have not been published before. In the days of my youth I felt at one time a passionate desire to subjugate the body by the spirit, and among other disciplines determined that my will should replace automatism by hastening or retarding automatic acts. Every breath was submitted to this process, with the result that the normal power of breathing was dangerously interfered with. It seemed as though I should suffocate if I ceased to will. I had a terrible half-hour; at length by slow and irregular steps the lost power returned. My dread was hardly fanciful, for heart-failure is the suspension of the automatic faculty of the heart to beat.

A later experiment was to gain some idea of the commoner feelings in Insanity. The method tried was to invest everything I met, whether human, animal, or inanimate, with the imaginary attributes of a spy. Having arranged plans, I started on my morning's walk from Rutland Gate, and found the experiment only too successful. By the time I had walked one

and a half miles, and reached the cabstand in Piccadilly at the east end of the Green Park, every horse on the stand seemed watching me, either with pricked ears or disguising its espionage. Hours passed before this uncanny sensation wore off, and I feel that I could only too easily re-establish it.

The third and last experiment of which I will speak was to gain an insight into the abject feelings of barbarians and others concerning the power of images which they know to be of human handiwork. I had visited a large collection of idols gathered by missionaries from many lands, and wondered how each of those absurd and ill-made monstrosities could have obtained the hold it had over the imaginations of its worshippers. I wished, if possible, to enter into those feelings. It was difficult to find a suitable object for trial, because it ought to be in itself quite unfitted to arouse devout feelings. I fixed on a comic picture, it was that of Punch, and made believe in its possession of divine attributes. I addressed it with much quasi-reverence as possessing a mighty power to reward or punish the behaviour of men towards it, and found little difficulty in ignoring the impossibilities of what I professed. The experiment gradually succeeded; I began to feel and long retained for the picture a large share of the feelings that a barbarian entertains towards his idol, and learnt to appreciate the enormous potency they might have over him.

I will mention here a rather weird effect that compiling these "Memories" has produced on me. By much dwelling upon them they became refurbished and so vivid as to appear as sharp and definite as things of to-day. The consequence has been an occasional obliteration of the sense of Time, and to replace it by the idea of a permanent panorama, painted throughout with equal vividness, in which the point to which attention is temporarily directed becomes for that time the Present. The panorama seems to extend unseen behind a veil which hides the Future, but is slowly rolling aside and disclosing it. That part of the panorama which is veiled is supposed to exist as vividly coloured as the rest, though latent. In short, this experience has given me an occasional feeling that there are no realities corresponding to Past, Present, and Future, but that the entire Cosmos is one perpetual Now. Philosophers have often held this creed intellectually, but I suspect that few have felt the possible truth of it so vividly as it has occasionally appeared to my imagination through dwelling on these "Memories."

2

Value of Miraculous Methods of Treatment



Pierre Janet

It is only too easy to make fun of stories of miraculous cure. Not merely are sceptics prone to use this weapon of ridicule, but the faithful do the same thing. The devotees of a religion are strongly inclined to attack kindred superstitions. Nothing will persuade the adepts of Lourdes that the miracles worked at the shrine of Aesculapius were genuine. Who could include the admirers of animal magnetism to take a serious view of such miracles as those of Lourdes? Each one attacks his neighbour, and is quite unaware that his criticisms rebound upon himself.

Manifestly, the chief difficulty of such studies does not lie in the interpretation of the miraculous phenomena, but in their accurate record. We need not follow Bertrin in his unending discussions as to whether the rapidity of a cure is a sign of miracle; or as to whether, when the Blessed Virgin effects a cure, she should or should not leave a scar.[1] What we really want to know is very simple, but at the same time extraordinarily difficult. We want to know what actually happened. But our knowledge of the facts is derived from the witnesses, and every one knows that the reports of witnesses are untrustworthy. The experimental studies of Binet, Claparède, and Le Bon have shown how rarely the witnesses of an event can describe it accurately, even when they have to do with simple phenomena which are not of a kind to arouse emotional reactions. What, then, are we to think of these accounts of happenings difficult to appreciate, of these diagnoses of chronic diseases, of these stories of temporary or permanent cures, these reports made by enthusiasts under stress of emotion,

In P. Janet, *Psychological Healing: A histological & clinical study*. 1. Originally published, 1919. Transl. from the French by Eden Paul and Cedar Paul. N.Y.: Macmillan, 1925. Pp. 43–53.

[1] Bertrin, op. cit., pp. 173 et seq.

influenced by the fear of death, by an eager wish for the cure of themselves or their dear ones, crazed by religious or by political passion? "The untrustworthiness of testimony is especially conspicuous," writes Le Bon, "when we have to do with religious or political happenings. That explains the stories of miracles and apparitions with which the books are packed. During ten centuries, thousands of persons saw the devil, and if the unanimous testimony of a vast number of observers could be regarded as proving anything, we should be entitled to assert that no one's existence is more certainly proved than that of the devil. . . . As far as testimony is concerned, it is the good faith of witnesses that is dangerous, and not their bad faith."

A possible rejoinder would be that those who have first-hand knowledge of the facts must surely know better than any armchair critic. One of the defenders of Lourdes thinks he can convince us by showing that a certain diagnosis was made by a hundred doctors in council. But, for our part, we know that observation and diagnosis become more difficult, and that their accuracy is more open to question, as soon as two or three doctors are gathered together. A careful examination by one skilled observer will have more weight with us than that of a council. Besides, we shall continue to think that the title of doctor affords no guarantee against ignorance or human passion. Nor does this title abrogate the old logical rule that the criticism of testimony must be rigorous in proportion to the manifest incredibility of the phenomena testified.

I have often been asked: "Why don't you undertake such a criticism yourself? Why don't you yourself verify the miracles of Lourdes, seeing that the account of these miracles has interested you so much?" The questioner perhaps hardly realises how much time and labour would be needed to pierce the mists of imposture, to smoothe down ruffled sensibilities, to check the testimony of each individual witness. He does not realise how much bitterness would be aroused by the attempt to gain a clear notion of the motives which induced the experts to sign such certificates. Great pains would be expended to secure a minimal result. It is easy to understand why so many conscientious observers have abandoned the attempt in disgust, and are content to accept the conclusion of Paul Dubois of Berne: "In these pilgrimages, the recorders are in a peculiar mental state. Lourdes is not far from Tarascon! . . . The student returns with an oppressive feeling that he has been in a world of superstition."[2]

Nevertheless, it seems to me that such an attitude is most unfortunate. Collections of observations concerning miracles are not scientific works, and should not be criticised in the same manner as collections of medical observations. It is extremely difficult to appreciate the worth of each individual fact, and yet there emerges a general impression of the truth of

[2] Les psychonévroses et leur traitement moral, 1904, p. 247.

the whole. There are instances in which the calculus of probabilities can establish quasi-certitude as regards a collection of facts, although it cannot justify a definite affirmation concerning any one of the facts taken alone. Speaking generally, I believe that cures take place at Lourdes. I believe, too, that there were numerous cures when the faith in animal magnetism was at its height. Many circumstances contribute to produce this general impression, the most notable being precisely the success of the pilgrimages or the magical practices. Bertrin has good reason for recording the number of trains that enter Lourdes every day, for insisting upon the number of the bishops and the pilgrims, and, more than all, for dwelling upon the vast figures totalled by the subscriptions and freewill offerings. Such data have far more convincing force than Bertrin's medical observations. The really remarkable success of magnetism for half a century; the numbers of patients whose cases are recorded by Mauduit, Guéritant, Cloquet, Deleuze, Aubin Gauthier, Pigeaire, Lafontaine, etc.--these facts prove the reality of magnetic action during the period in question. There is no smoke without fire, and recourse to religious and magical methods of treatment would not have continued for centuries if these methods had been utterly devoid of value. Scientific medicine (or medicine which is nearly scientific) has perfected some of the methods of religious or of magical medicine, and has made the application of these methods more trustworthy; but scientific medicine would never have been born unless the methods of religious and magical medicine had already justified the confidence of mankind by their proved efficacy.

Let me add that we regular practitioners all have opportunities from time to time of observing some of these cures that bear the stamp of the miraculous. Even at the Salpêtrière, patients have been cured by having the Blessed Sacrament held over their heads.[3] Paul Dubois, whose attitude towards Lourdes is so critical, records the history of a patient "whose neck and jaws had been rigidly fixed for years, who had been fruitlessly treated by a number of famous physicians and surgeons, but who was promptly cured in the piscina of Lourdes."[4] I have myself been able to cure a great many patients by methods resembling those of magnetism. The cures wrought by thaumaturges follow the same laws as the cures effected by regular medical practitioners, and this entitles us to believe in the reality of the former. Charcot insisted on this point when he was studying the cures at the tomb of Deacon Pâris; I have referred to the same thing in connexion with a case recorded among the cures wrought by the Precious Blood of Fécamp; more recently, Mangin has made a similar remark regarding some of the Lourdes miracles.[5] As concerns the reality of these miracles, we may adopt the conclusion drawn by the two

[3] Cf. Régnard, Les maladies épidémiques de l'esprit, etc., 1887, p. 109.
[4] Op. cit., p. 440.
[5] "Annales des Sciences Psychiques," December 1907.

Myers. They considered that stories of "mediumistic marvels" and "alleged miracles of healing" could be grouped in three classes. The first group comprised cases entirely devoid of evidential value. The second was made up of cases which could be paralleled by phenomena due to ordinary causes (including fraud). In the third class was a small residue of cases not obviously liable to these fatal objections, and therefore demanding further study.[6]

We have, then, to admit the reality of miraculous cures. Man desires them, and seeks them with the aid of special methods; but he attains the wished-for end so rarely, and the sequence is so irregular, that he cannot ascribe absolute efficacy to the methods he employs. Consequently, he is forced to believe that unknown forces, capricious and mysterious, play their part. Still, such cures are common enough to have been subjected, like other phenomena of the same character, to observation and discussion.

Charcot, in his remarkable study of *The Faith Cure*, was one of the first to point out, with regard to miraculous cures, that they continually recur under closely similar conditions. His account of Faith Healing made its appearance in English in the London "New Review" (issue for January 1893), the French original being simultaneously published in the "Archives de Neurologie," vol. xxv, pp. 72 et seq. No matter, said Charcot, whether the miracles we study are ancient or modern, we almost always note the same surroundings: a fine mountain country, a sacred spring, the dark cave which the ancients used to describe as the earth's mouth, the wonder-working statue. "Among the servitors of the temple are the doctor-priests who are charged with noting and aiding the cures—that is to say, the Medical Board which the shrines of to-day never fail to maintain if they are of sufficient importance."

In this connexion, Charcot makes an amusing observation. He has learned that in Poitou there are certain old women whose profession is to act as intercessors at the tomb of Saint Padegonde on behalf of those who, although believers in the faith cure, either cannot or will not come to the shrine in person. Precisely similar intercessors were found in classical days at the temple of Aesculapius. The preparatory stages of the miracle have always been the same. The patient is one who has come from a distance, and has had an arduous journey. The local residents are not good subjects for these miraculous cures—which accounts for the remarkable fact that there are still sick people in and near Lourdes! The patient is not allowed to dispense with preliminaries. He must not straightway touch the relic or drink the healing waters of the sacred spring. There is a probationary period, a propitiatory novena. There are long waits at the gateway of the temple during which the sufferer listens to sermons and repeats prayers. Above all, during these periods of probation, the

[6] Proceedings of the Society for Psychical Research, 1893, p. 165.

sick hear a great deal about miraculous cures, and have an opportunity of looking at the numberless votive offerings. In a word, their entry into the temple is a slow one, and their minds are prepared by a special incubation. If the miracle is wrought, the patient must then return public thanks to the deity, and must decorate the temple with material evidence of gratitude. All these things happen to-day at Lourdes just as they used to happen of old at the temple of Aesculapius. The same remark applies to animal magnetism. In the solemn sittings round Mesmer's "baquet," in the occult practices around the clairvoyante who spoke in a trance, in the initiatory rites and hermetic instructions, we recognise the same preparation of the patient under a somewhat different form.

This community of practice throughout the ages and in such widely separated countries is highly significant. We learn from it that miracle is less arbitrary, less free, than we had fancied; we learn that even a miracle is subject to immutable laws. The god who works miracles does not cure any chance comer, nor cure in a haphazard fashion. You will find it useless, at one of these sanctuaries, to ask that the god or the wonder-working fluid shall restore an amputated limb or remove the scar of a wound. You will be given good reasons. The adepts will tell you that the god likes the traces of the miracles to persist; and so on. At long last you will be told that you must not be importunate, and that the god is not interested in that particular kind of surgery. On the other hand, there is no end to the number of cures of disorders of sensation and movement. In many such cases a cure can be confidently expected. A miracle, in fact, is no more arbitrary than lightning, which the ancients likewise believed to be the work of the gods. We must learn, says Charcot, to understand the determination of these new phenomena, these natural phenomena which occur everywhere. We must study the science of miracles so that we may be able to reproduce them at will. Day by day, he adds, the domain of the supernatural is being restricted, thanks to the extension of the domain of science. One of the most notable among scientific victories over the mysteries of the universe will be achieved when we have tamed, have domesticated, the therapeutic miracle.

Having thus realised the determinism of miracles, science can make a further step forward. We are beginning to understand that we have to do with a particular kind of determinism, that which regulates mental phenomena. The ancients were on their way to recognize this. Galen wrote: "We have proof at the temple of Aesculapius that many serious illnesses can be cured solely by the shock administered to the mind."

To-day we have a fair amount of evidence in support of this supposition. First of all, the majority of the patients cured under such conditions are neuropaths. That is to say, they are persons whose illness is to a preponderating extent due to mental causation. Selecting a year haphazard, I have studied the cures that took place at Lourdes. Among these I found

110 cases of considerable interest. Without trying to eliminate the errors and frauds which must have modified a good many of these case-histories and have rendered it more difficult to ascertain their real nature, I have been able to decide that 92 out of the 110 were cures of neuropathic disorders. When we study the reports of cures by animal magnetism, we find an even larger proportion of neuropathic cases. The magnetisers frankly admit the fact. Aubin Gauthier,[7] Rostan,[8] Morel, Prosper Despine,[9] Georget, and others, were aware that the magnetic influence was chiefly exerted upon neuropaths. The conditions which have come to be recognised as desirable preliminaries to the miracle—a long pilgrimage to the shrine, tedious waiting, tales of wonder, religious exaltation, public sittings, the emotion induced by the marvellous and the terrible—are all familiar causes of mental perturbation. Of late years, the study of one specific psychological phenomenon, suggestion, has shown that in certain cases it is possible, by purely psychological methods, to induce phenomena closely akin to those observed in instances of miraculous cure. The general conclusion has been drawn that we must look into the domain of psychology if we wish to throw light on the determinism of miracles and to learn the means of producing like effects by a regular causal sequence.

Some authors, advocates of a purely religious interpretation of miracles, protest against these deductions, although their protests have little force. They demur to the description of the Lourdes patients as neuropaths for the most part; and they even exhibit a certain amount of hostility towards those patients who are undeniably neuropaths, regarding the cure of these as a matter of little interest. A strange mistake, this! Nothing is more difficult than to cure a confirmed neuropath, and Lourdes would deserve all its reputation and more if it were preeminent for the cure of neuropaths alone. Very little medical knowledge is requisite to show that, among the patients cured at Lourdes, most even of those whose illnesses are classed under some other head, are really neuropaths in whom the nervous character of the disorder has been masked.

Other discussions of the subject have turned, as a rule, upon the unhappy word "suggestion." The objectors have endeavoured to show that some of the cures spoken of as miraculous cannot be explained by suggestion, so that such cures do not belong to the realm of psychological phenomena. The arguments used are sometimes remarkable. Bertrin, in particular, seems to have a very hazy notion of suggestion. It is, he writes, "a well-known force; . . . we quite understand what it can do, and we understand even better what it cannot do."[10] But science is far from making any such claim. The International Society of Medical Psychology and Psychotherapy,

[7] Histoire du somnambulisme, vol. ii, p. 324.
[8] "Hermès." p. 43
[9] Le somnambulisme, p 24.
[10] Op. cit., p. 298.

when meeting at Brussels in 1910, devoted itself to the study of the nature of suggestion, but was unable to arrive at definite conclusions upon all points. As for Bertrin, some of his opinions concerning suggestion are very remarkable: "To induce suggestion there must be a clear, categorical, authoritative affirmation. Hope has no influence in psychotherapy [!]. . . . Suggestion does not occur when the would-be suggester begs instead of ordering."[11] Doubtless some suggestions have an imperative character, but it is no less certain that well-marked suggestion can be effected without anything like an order; in fact, suggestion by insinuation is often far more potent. It is really surprising that anyone so incompetent as Bertrin should venture to undertake such studies.

Still, a detailed discussion of suggestion would be superfluous here, seeing that I am perfectly willing to admit that some of the phenomena of miraculous cures are not explicable by suggestion. This admission does not invalidate the conclusion that we have to do with psychological phenomena; for it would be strange, and even absurd, to limit the field of psychology to suggestion more or less perfectly understood. The psychological phenomena which occur in connexion with such treatments are extremely numerous, and about some of them we know very little. There can be no doubt that religious faith must play a great part, or faith in science; though the faith may be in pseudo-religion or pseudo-science, with all their content of exaggerated hopes and potent tendencies. Nevertheless, we may admit that "patients are cured who had no hope of cure, blind unbelievers who spoke evil of religion and were none the less cured; and there have been others who have been cured after returning home, when they had ceased to expect a cure."[12] This merely proves that religious faith is not the only factor; the instinctive respect for wealth and power has made it possible for kings to cure illness just as well as priests. The journey, fatigue, the strangeness of the environment, a new physical and moral hygiene, emotional shocks of all kinds, the effect of public opinion exercised in virtue of the reputation of the remedy, the powerful and little understood influence of the crowd—all these things combine to work on the patients' minds. Zola puts the matter very well in his description of Lourdes: "Autosuggestion, emotional perturbation due to long expectation, the excitement of the journey, prayers, hymns, increasing exaltation; above all, the breath of healing, the unknown force exhaled by the crowd during the acute crisis of faith."[13]

Among all these influences, I should like to emphasise one which I regard as important, though little known, and one which we shall meet again in the sequel. I refer to the nervous and mental excitation produced

[11] Op. cit., pp. 185 and 189. On this point, consult Marcel Mangin in "Annales des Sciences Psychiques," December 1907.
[12] Bertrin, op. cit., p. 185.
[13] Lourdes, p. 199.

in an individual by the part he is made to play. We are only just beginning to understand that many diseases, physical as well as mental, are due to the depression of nervous energy, and that this depression is maintained by troubles of every kind, and by inaction. How many people fall sick because they have nothing of interest to do; because their life is commonplace, dull, and monotonous; because they have no hope, no ambition, no aim; because no one is interested in them, and because they see no prospect of arousing anyone's interest. Take a person of this type and make him understand that the Blessed Virgin is going to work a miracle in his favour, that the all-powerful divine being has chosen him from among thousands to grant him a special favour which no one will be able to overlook, that he will become the living proof of the truth of religion and will promote the eternal salvation of an impious century. Take a woman who is hopelessly bored, who has no interest in life and no part to play in it, and make her understand that she is going to become an ultra-lucid somnambulist, one whose thought can transcend the limits of time and space, one who can amaze her fellow human beings and overwhelm them with benefactions; make her understand that she is to become the collaborator with a person of quite exceptional gifts, to whom she will give her time, her life, and some of her affection, so that, thanks to her, he may be able to write a wonderful book which will save humanity. Is it not plain that such persons will be morally and physically transformed, and that the transformation is fully explicable without having recourse to the power of the gods or the action of a mysterious fluid? Such are some of the psychological influences concerned in the working of miracles. Probably there are many others which still elude analysis.

We have thus been led to surmise that psychological phenomena play a notable part in miraculous cures, and we have realised that miracles still constitute to-day one of the most elementary among psychotherapeutic methods. But we must not forget that these psychological influences operate in an extremely vague and confused way. They are ignored, not only by the patient, but also by the operator, who believes himself to be utilising forces of a very different character. We have to do with unwitting psychotherapeutics. For this reason, however real the psychotherapeutic action, its range is greatly restricted. I have tried to show that miraculous methods of treatment are sometimes successful, but I hope that none of my readers will dispute the assertion that more often they fail. The persons who have made a pilgrimage to wonder-working springs who have besought the aid of the gods in accordance with the prescribed ritual, who have swallowed theriacs, or have been magnetised, without deriving any benefit by these procedures, may be counted by millions. The failures greatly outnumber the cures.

Furthermore, we have discovered no indication of any method by which

we can learn whether one individual has better chances than another of being cured by a miracle The operators will not allow of any distinction between the diseases with which they have to deal. They claim that they can cure anything, everything Diagnosis counts for naught, and the sufferer's chances will not be improved by making him suit his conduct to particular circumstances Do we ask that the patient's moral predispositions shall be taken into account? We are told that faith is of no moment, that it cannot determine the choice of Providence, and that frequently unbelievers are given a preference We are not to consider the sufferer's suggestibility, for it is wrong to invoke psychological influences In a word, there is no clue to guide us through the maze; we are to play blind hookey; we are to buy tickets in a lottery where the prizes are few and far between

'Twould not be so bad if the game had no other drawbacks, but the cost of the journey, the upkeep of the priest who lives upon the shrine, the magician's fees, empty the patient's pockets Can we say that such methods of treatment never induce serious fatigue or other troubles? Among all the patients I have known to visit these abodes of miracle (some were sent by myself), one or two have returned better than they were before they set forth, and the improvement has lasted several months, the others have come back worse than when they started, more hopeless than ever The time spent upon these fruitless endeavours has often been long, so that the disease has gained ground when it might have been more successfully treated in some other way As long as the only available medicine was the medicine of miracle, men may have been well advised to risk the remnants of their health by taking tickets in this lottery But to-day, surely, they might find something better to do.

3

A Case of Multiple Personality



Corbett H. Thigpen and Hervey Cleckley

The psychiatric manifestation called multiple personality has been extensively discussed. So too have the unicorn and the centaur. Who has not read of these legendary quadrupeds? Their pictures are, perhaps tiresomely, familiar to any schoolboy. Can one doubt that during medieval times many twilight encounters with the unicorn were convincingly reported? Surely in the days of Homer there were men of Thessaly or Beotia who had seen, or even ridden, centaurs almost as wise as Chiron.

The layman who at college took a course in psychology may feel that for him *dual personality*, or *multiple personality*, is a familiar subject. Some psychiatrists' reactions suggest they are inclined to dismiss this subject as old hat. Nevertheless, like the unicorn and the centaur in some respects, multiple personality, despite vivid appearances in popularized books on psychology (2), is not commonly encountered in the full reality of life (1, 16, 17). Nearly all those perplexing reports of two or more people in one body, so to speak, that arouse a unique interest in the classroom, are reports of observations made in a relatively distant past. The most significant manifestations of this sort discussed in the current literature occurred in patients studied half a century or more ago (13, 23). It is scarcely surprising that practical psychiatrists today, never having directly observed such things as Morton Prince found in Miss Beauchamp or as Azam reported of Felida, might hold a tacitly skeptical attitude toward such archaic marvels and miracles. In the fields of internal medicine and chemistry the last, or even the middle, decades of the nineteenth century are close to us. In the relatively new field of psychopathology they are almost primeval, a dim dawn era in which we find it easy to suspect

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that a glimpse of a rhinoceros might have led to descriptions of the unicorn, or the sound of thunder been misinterpreted as God's literal voice.

A reserved judgment toward what cannot be regularly demonstrated is not necessarily deplorable. Some current tendencies suggest that our youthful branch of medicine may not yet have emerged from its primordial and prerational phase. The discovery of *orgone* by one of our erstwhile leaders in the development of "psychodynamics" should not be ignored (4, 25). Enthusiastically adduced "proof" from an adult's dream that he was as an embryo significantly traumatized by fear of his father's penis, which during intercourse threatened him from his mother's vagina, is, we believe, the sort of evidence toward which our "resistance" is not without value (21). Despite Morton Prince's exquisitely thorough study of the celebrated Miss Beauchamp (23, 24) it is not surprising that decades ago McDougall should have warned us:

> It has been suggested by many critics that, in the course of Prince's long and intimate dealings with the case, involving as it did the frequent use of hypnosis, both for exploratory and therapeutic purposes, he may have moulded the course of its development to a degree that cannot be determined. This possibility cannot be denied (16, p. 497).

It is perhaps significant to note that, despite the light (or at least the half-light) they throw on most of the puzzling manifestations of psychiatric disorder, the studies of Prince and others on multiple personality are not even mentioned in some of the best and most popular textbooks of psychiatry used in our medical schools today (19, 26). When mentioned at all in such works, the subject is usually dismissed with a few words (11, 20). It is particularly noteworthy that Freud, during his years of assiduous investigation, apparently displayed no appreciable interest in the development of this disorder. Erickson and Kubie cite one brief allusion (9) which they term his "only reference to the problem" (6).

Psychiatrists who would not deny outright the truly remarkable things reported long ago about multiple personality, even when accepting them passively in good faith seem often to do so perfunctorily. In the midst of clinical work, with its interesting immediate experiences and pressing demands, few are likely to focus a major interest on what is known to them only through dust-covered records, on what they have never encountered, and do not expect to deal with. During the complications and excitements of a stormy sea voyage even the most sincere believer in the miracle of Jonah will probably not look to whales for his chief solution of problems that may arise from shipwreck.

Our direct experience with a patient has forced us to review the subject of multiple personality. It has also provoked in us the reaction of wonder, sometimes of awe.

One of us (C. H. T.) had for several months been treating a twenty-

five-year-old married woman who was referred because of "severe and blinding headaches" At the first interview she also mentioned "blackouts" following headache These were vaguely described by the patient Her family was not aware of anything that would suggest a real loss of consciousness or serious mental confusion During a series of interviews which were irregular, since the patient had to come from some distance away, several important emotional difficulties were revealed and discussed Encouraging symptomatic improvement occurred but it was plain that this girl's major problems had not been settled To the therapist, Eve White – as we shall call her – was an ordinary case with commonplace symptoms and a relatively complex but familiar constellation of marital conflicts and personal frustrations We were puzzled during therapy about a recent trip for which she had no memory Hypnosis was induced and the amnesia cleared up promptly Several days after a visit to the office a letter was received (Exhibit 1)

What was the meaning of such a letter? Though unsigned the postmark, the content and the familiar penmanship in most of the message revealed to the therapist that this had been written by Eve White The effect of this letter on the therapist was considerable It raised puzzling questions for which there were no answers and set in motion thoughts that pursued various and vague directions Had some child found the uncompleted page, scribbled those words and perhaps as a whim mailed it in an already addressed envelope? Perhaps The handwriting of the last paragraph to be sure suggested the work of a child Could Eve White herself, as a puerile prank have decided to disguise her characteristic writing and added this inconsequential note? And if so why? Mrs White had appeared to be a circumspect, matter of fact person meticulously truthful and consistently sober and serious about her grave troubles It was rather difficult to imagine her becoming playful or being moved by an impulse to tease, even on a more appropriate occasion The "blackouts" which she had rather casually mentioned but which did not seem to disturb her very much, suggested of course that a somnabulism or brief fugue might have occurred

On her next visit she denied sending the letter, though she recalled having begun one which she never finished She believed she had destroyed it During this interview Eve White ordinarily an excessively self-controlled woman began to show signs of distress and agitation Apprehensively and reluctantly she at last formulated a question Did the occasional impression of hearing an imaginary voice indicate that she was "insane"?

To the therapist this information was startling Nothing about Eve White suggested even an early schizoid change Her own attitude toward what she now reported was in no respect like any of the various attitudes of patients who are in the ordinary sense experiencing auditory hallucinations Yet, she insisted with painful embarrassment, she had on several occasions

Dear Doctor,

Remembering my visit to [illegible] brought me a great deal of relief, to begin with.

Just being able to recall the trip seemed enough, but now that I've had time to think about it and all that occurred, it's more painful than I ever thought possible.

How can I be sure that I remember all that happened, even now? How can I know that it won't happen again? I wonder if I'll ever be sure of anything again.

While I was there with you it seemed different. Somehow it didn't matter so much, to have forgotten; but now it does matter. I know it's something that doesn't happen at

I can't even recall color schemes and I know that would probably be the first thing I'd notice.

My head hurts right on top. It has ever since the day I was down there to see you. I think it must be my eyes. I see little red & green specks. and I'm covered with some kind of rash.

[illegible] baby please be quite [illegible] and let me have patience with her [illegible] my self-control

over the last few months heard briefly but distinctly a voice addressing her. Something about her reaction to this may be conveyed if we compare it to what we can imagine an experienced psychiatrist in robust mental health might feel if, with full retention of insight, he heard himself similarly addressed. While the therapist, hesitating a moment in wonder, sought for an adequate reply, an abstruse and inexplicable expression came, apparently unprompted by volition, over Eve White's familiar countenance. As if seized by a sudden pain she put both hands to her head. After a tense moment of silence, her hands dropped. There was a quick, reckless smile and, in a bright voice that sparkled, she said, "Hi there, Doc!"

The demure and constrained posture of Eve White had melted into buoyant repose. With a soft and surprisingly intimate syllable of laughter, she crossed her legs. Disconcerted as he was by unassimilated surprise, the therapist noted from the corner of his awareness something distinctly attractive about them, and also that this was the first time he had received such an impression. There is little point in attempting here to give in detail the differences between this novel feminine apparition and the vanished Eve White. Instead of that retiring and gently conventional figure, there was in the newcomer a childishly daredevil air, an erotically mischievous glance, a face marvellously free from the habitual signs of care, seriousness, and underlying distress, so long familiar in her predecessor. This new and apparently carefree girl spoke casually of Eve White and her problems, always using *she* or *her* in every reference, always respecting the strict bounds of a separate identity. When asked her own name she immediately replied, "Oh, I'm Eve Black."

It is easy to say that this new voice was different, that the basic idiom of her language was plainly not that of Eve White. A thousand minute alterations of manner, gesture, expression, posture, of nuances in reflex or instinctive reaction, of glance, of eyebrow tilting and eye movement, all argued that this could only be another woman. It is not possible to say just what all these differences were.

It would not be difficult for a man to distinguish his wife, or perhaps even his secretary, if she were placed among a hundred other women carefully chosen because of their resemblance to her, and all dressed identically. But few would wager that, however articulate he might be, he could tell a stranger, or even someone very slightly acquainted with her, how to accomplish this task. If he tries to tell us how he himself recognizes her, he may accurately convey something to us. But what he can convey, no matter how hard he tries, is only an inconsequential fragment. It is not enough to help us when we set out to find her. So, too,

EXHIBIT I (opposite page)

This letter in retrospect was the first intimation that our patient was unusual. The dramatic and unexpected revelation of the second personality shortly followed.

we are not able to tell adequately what so profoundly distinguishes from Eve White the carefree girl who took her place in this vivid mutation.

Even before anything substantial of her history could be obtained, the therapist reacted to the new presence with feelings that momentarily recalled from distant memory these words:

> The devil has entered the prompter's box
> And the play is ready to start.

Over a period of 14 months during a series of interviews totaling approximately 100 hours, extensive material was obtained about the behavior and inner life of Eve White- and of Eve Black. It is our plan to report on this more adequately in a book-length study. Here space limits our presentation to a few details.

Eve Black, so far as we can tell, has enjoyed an independent life since Mrs. White's early childhood.[1] She is not a product of disruptive emotional stresses which the patient has suffered during recent years. Eve White apparently had no knowledge or suspicion of the other's existence until some time after she appeared unbidden before the surprised therapist. Though Mrs. White has learned that there is a Miss Black during the course of therapy, she does not have access to the latter's awareness. When Eve Black is "out," Eve White remains functionally in abeyance, quite oblivious of what the coinhabitant of her body does, and apparently unconscious.

On the contrary, Eve Black preserves awareness while absent. Invisibly alert at some unmapped post of observation, she is able to follow the actions and the thoughts of her spiritually antithetical twin. The hoydenish and devil-may-care Eve Black "knows" and can report what the other does and thinks, and describes her feelings. Those feelings, however, are not Eve Black's own. She does not participate in them. Eve White's genuine and natural distress about her failing marriage is regarded by the other as silly. Eve White's love and deep concern for her only child, a little girl of four, is to us and to all who know her, warm, real, consistent, and impressive. Eve Black, who shares her memory and verbally knows

[1] The question: "How can the various personalities be called out?" has been asked. After the original spontaneous appearance of Eve Black it was at first necessary for Eve White to be hypnotized in order for us to talk with Eve Black. How Eve Black could "pop out" of her own accord at unpredictable times and yet could not come out on request, we do not know. Under hypnosis of Eve White, Eve Black could very easily be called forth. After a few hypnotic sessions, we merely had to request Eve White to let us speak to Eve Black. Then we called Eve Black's name, and Eve Black would come forth. The reverse was true when Eve Black was out and we wished to speak with Eve White. Hypnosis was no longer necessary for the purpose of obtaining the changes. This made things simpler for us but complicated Eve White's life considerably because Eve Black found herself able to "take over" more easily than before. A third personality, Jane, to be described below, emerged spontaneously and we have never had to employ hypnosis to reach her.

her thoughts, discerns her emotional reactions and values only as an outsider. They are for the outsider something trite, bothersome, and insignificant. The devotion of this mother for her child, as an empty definition, is entirely familiar to the lively and unworried Eve Black. Its substance and nature are, however, so clearly outside her personal experience that she can evaluate it only as "something pretty corny."

During the temporary separation of her parents, which may become permanent, this little girl is living with her grandparents in a village. Because her earnings are necessary for her child's basic welfare, the mother has no choice but to work and live in a city approximately a hundred miles from the child. Having apparently known little but unhappiness with her husband, she was finally forced to the conclusion that her young and vulnerable child had little chance of a happy or normal development in the home situation which, despite her best efforts, continually grew worse. She now endures the loneliness, frustration, and grief of separation from her warmly loved daughter, who is the primary object of her life and feeling, and who she has good reason to fear is likely to grow up apart from her. Perhaps it seems to her sometimes, she will become to her as years pass little more than a coolly accepted stranger.

Vulnerable, uningenious, and delicately feminine, Eve White characteristically preserves a quiet dignity about personal sorrow, a dignity unpretentiously stoic. Under hypnosis one can come closer to the sadness and the lonely despair she feels it her task not to display. Even then no frantic weeping occurs, no outcries of self-pity. Her quiet voice remains level as she discusses matters that leave her cheeks at last wet from silent tears.

Despite access to this woman's "thoughts" Eve Black has little or no real compassion for her. Nor does she seem in any important sense actively, or purposefully, cruel. Neutral or immune to major affective events in human relations, an unparticipating onlooker, she is apparently almost as free of hatefulness or of mercy, or of comprehension, as a bright-feathered parakeet who chirps undisturbed while watching a child strangle to death.

It has been mentioned that Eve Black's career has been traced back to early childhood. She herself freely tells us of episodes when she emerged, usually to engage in acts of mischief or disobedience. She lies glibly and without compunction, so her account alone can never be taken as reliable evidence. Since Eve White, whose word on any matter has always proved good, still has no access to the other's current awareness or her memory and, indeed, did not until recently even faintly suspect her existence, it has been impossible through her to check fully and immediately on Eve Black's stories. Her memory has, however, afforded considerable indirect evidence since she has been able to confirm reports of punishments she received, of accusations made against her, for deeds unknown to her but described to us by Eve Black.

Some stories have been substantiated through others. Both of this patient's

parents, as well as her husband, have been available for interviews. They recall several incidents that Eve Black had previously reported to us. For instance, the parents had had to punish their ordinarily good and conforming six-year-old girl for having disobeyed their specific rule against wandering through the woods to play with the children of a tenant farmer. They considered this expedition dangerous for so young a child, and their daughter's unaccountable absence had caused them worry and distress. On her return Eve received a hearty whipping despite her desperate denials of wrongdoing or disobedience. In fact these very denials added to her punishment, since the evidence of her little trip was well established and her denial taken as a deliberate lie. Eve Black had previously described this episode to us in some detail, expressing amusement about "coming out" to commit and enjoy the forbidden adventure and withdrawing to leave the other Eve, sincerely protesting her innocence, to appreciate all sensations of the whipping.

The adult Eve White recalled this and several other punishments which she had no way of understanding and which sometimes bewildered her in her relations with her parents.

Irresponsibility and a shallowly hedonistic grasping for ephemeral excitements or pleasures characterize Eve Black's adult behavior. She succeeded in concealing her identity not only from the other Eve but also from her parents and the husband. She herself denies marriage to this man, whom she despises, and any relation to Eve White's little girl except that of an unconcerned bystander. Though she had often "come out" in the presence of all these people, she went unrecognized until she agreed to reveal herself to them in the therapist's office.

Her wayward behavior, ill will, harshness, and occasional acts of violence, observed by Mr. White and the parents, were attributed to unaccountable fits of temper in a woman habitually gentle and considerate.

During her longer periods "out," when she expresses herself more freely in behavior so unlike that of Eve White, she avoids her family and close friends, and seeks the company of strangers or of those insufficiently acquainted with her alternate to evaluate accurately the stupendous transformation.

Once we had seen and spoken with Eve Black, it seemed to us at first scarcely possible that, even in the same body as her alternate, she could for so long have concealed her separate identity from others. Yet, who among those acquainted with her would be likely to suspect, however unlike herself Eve appeared at times to be, such a situation as that voluntarily revealed to us by the patient? No matter how many clues one is given, no matter how obvious the clues, one will not be led to a conclusion that is inconceivable. One will seek explanations for the problem only among available hypotheses.

Not knowing the only concept into which successive details of perception

will fit, even a very astute man may observe a thousand separate features of something his imagination has never shaped without grasping the gestalt, without being able to put into a recognizable whole the details he has so clearly detected. Only our previous familiarity with three-dimensional space enables us to see the representation of depth in a picture. What is for us still unconceived can give us a thousand hints, boldly flaunt before us its grossest features, and remain for us undelineated, formless, uncomprehended as an entity.

The astonishingly incompatible gestures, expressions, attitudes, mannerisms, and behavior which Eve occasionally displayed before intimates provoked thought and wonder, demanded explanation. But who in the position of these people would be likely to find or create in his mind the hypothesis that forms a recognizable image? Let us remember too that Eve Black, until she voluntarily named herself to the therapist, meant to remain unrecognized. When it suits her, she deliberately and skillfully acts so as to pass herself off as Eve White, imitating her habitual tone of voice, her gestures, and attitudes. Let us not forget that she is shrewd. Would it not, after all, require a sledge-hammer blow from the obvious to drive into an unsuspecting acquaintance the only hypothesis that would lead to her recognition?[2]

Psychometric and projective tests conducted on the two Eves by a well-qualified expert were reported thus:

Psychological Consultation Report

This twenty-five-year-old married female patient was referred for psychological examination with a provisional diagnosis of dual personality. Two complete psychological examinations were requested, one of the predominant personality, Mrs. White, the other, . . . of the secondary personality, Miss Black.

The patient is the oldest of three siblings, having twin sisters. She quit school two months before graduation from high school. She was employed as a telephone operator. She has been married six years and has a girl four years old. Patient states that she did things recently she cannot remember having done, and expresses serious concern about this condition. The following psychological tests were administered in both examinations:

Wechsler-Bellevue Intelligence Scale
Wechsler Memory Scale
Drawings of Human Figures
Rorschach

[2] Eve White's husband and parents were troubled by the unexplicable changes in her. They assumed them to be "fits of temper" about which she lied. Her mother called the fugues of her daughter these "strange little habits." Apparently these people observed the same changes that we have observed, but unlike ourselves, they have not had the conception of multiple personality in mind. Lacking it, they could not use it as an explanatory construct.

Test Behavior

Patient was neat, friendly, and cooperative. However, while Mrs. White was more serious, more conscientious, and displayed more anxiety, Miss Black appeared somewhat less anxious and was satisfied with giving more superficial responses. Still the basic behavior pattern was very similar in both personalities, indicating that inhibitory forces were not markedly abolished even in the role of the desired personality. Speech was coherent, and there were no distortions in ideation or behavior according to the assumed personality. No psychotic deviations could be observed at the present time.

Tests Results

While Mrs. White is able to achieve an IQ of 110 on the Wechsler-Bellevue Intelligence Scale, Miss Black attains an IQ of 104 only. There is evidence that the native intellectual endowment is well within the bright normal group; however, in Mrs. White's case anxiety and tenseness interfere, in Miss Black's superficiality and slight indifference as to achievement are responsible for the lower score. While Mrs. White shows more obsessional traits, Miss Black shows more hysterical tendencies in the records. It is interesting to note that the memory function in Miss Black is on the same level as her Intelligence Quotient, while Mrs. White's memory function is far above her IQ, although she complained of a disturbance of memory. The only difficulty encountered by both personalities is on recall of digits, a performance in which telephone operators usually excel! On the other hand, the Rorschach record of Miss Black is by far healthier than the one of Mrs. White. In Miss Black's record a hysterical tendency is predominant, while Mrs. White's record shows constriction, anxiety, and obsessive compulsive traits. Thus Miss Black is able to conform with the environment, while Mrs. White is rigid and not capable of dealing with her hostility.

Personality Dynamics

A comparison of the projective tests indicates repression in Mrs. White and regression in Miss Black. The dual personality appears to be the result of a strong desire to regress to an early period of life, namely the one before marriage. Miss Black is actually the maiden name of Mrs. White. Therefore, there are not two different personalities with completely dissimilar ideation, but rather one personality at two stages of her life. As is characteristic for this type of case, the predominant personality is amnesic for the existence, activities, or behavior of the secondary or subordinate system, while the secondary personality is aware and critical of the predominant personality's activities and attitudes. The latter reaction is quite similar to the ego-conflict in obsessive compulsive disturbances.

Mrs. White admits difficulty in her relation with her mother, and her performance on the Rorschach and drawings indicate conflict and resulting anxiety in her role as a wife and mother. Only with strong conscious effort can she compel herself to subject herself to these roles. The enforced subjection results in ever increasing hostility. This hostility, however, is

not acceptable to her, and activates a defense mechanism of regression to avoid severe guilt feelings by removing the entire conflictual situation from conscious awareness At the same time, the new situation (in which she plays the role of Miss Black) permits her to discharge some of her hostility towards Mrs White Miss Black on the other hand has regained her previous status of freedom from marital and maternal conflicts, and thus has liberated herself from the insoluble situation in which Mrs White found herself through her marriage In addition she can avert the in her conviction—inevitable spiritual loss of her child Thus, it is not surprising that she shows contempt for Mrs White who permitted herself to become involved in such a situation because of her lack of foresight, as well as her lack of courage to forcefully solve the dilemma

Actually the problem started at a much earlier period of life with a strong feeling of rejection by her parents, especially after the birth of her twin sisters Mrs White loves them dearly, Miss Black despises them In this connection an episode is related by Miss Black After quitting school to help support the family she (that is to say Mrs White) sent home money to be used for overcoats for her twin sisters, denying herself a badly wanted wristwatch When the money was used to buy them two wristwatches instead of overcoats, she reacted with strong, but repressed, hostility Significantly she removed her wristwatch while examined as Mrs White, stating that she does not like jewelry There are several illustrations of her strong sense of rejection as well as sibling rivalry in her records

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With the circumspect Eve White oblivious of her escapades, Miss Black once recklessly bought several expensive and unneeded new dresses and two luxurious coats Sometimes she revels in cheap night clubs flirting with strange men on the make Insouciantly she pursues her irresponsible way, usually amused sometimes a little bored, never alarmed or grieved or seriously troubled She has apparently been unmoved by any sustaining purpose unattracted by any steady goal prompted only by the immediate and the trivial

Eve White's husband on discovering the valuable outlay of new clothes, which the other Eve had hidden carefully away lost his temper and abused his wife for wantonly plunging him into debt He found no way to accept her innocent denials as genuine but was at length assuaged in wrath by her wholehearted agreement that it would be disastrous for them to run up such a bill, and her promptness in returning all these garments to the store [1] Eve White has told us of many real and serious incompatibilities

[1] Mrs White apparently failed to produce a satisfactory rationalization This is true for all of her fugue states She did tell us she suspected that her husband may have planted the clothes in order to make it appear that she was "insane" She did not however seem to come to grips with the problem Apparently finding it along with so many other problems too much for her she took an attitude in some ways like that of Scarlett O'Hara when the latter would tell herself, "Well, tomorrow will be another day"

with her husband. Even if the two were unmolested by an outsider, it is doubtful if the imperfections of this marriage, its unhappiness, and the threats to its continuation could be alleviated. Adverse acts and influence by an insider have been peculiarly damaging and pernicious. Though Eve Black does not apparently follow a consistent purpose to disrupt the union, or regularly go out of her way to make trouble for the couple, her typical behavior often compounds their difficulties.

"When I go out and get drunk," Eve Black with an easy wink once said to both of us, "*she* wakes up with the hangover. She wonders what in the hell's made her so sick."

Though as a rule only indifferent, passively callous to her alternate's child, Eve Black once in the past became irritated with her and hurt her. Apparently she might have done her serious harm had her husband not restrained her. This act she denied and lied about consistently though the evidence for it through others is strong. Later she flippantly confessed, giving as her reason, "The little brat got on my nerves."

Abstract terms and other descriptive words are not likely to convey much of what one experiences directly of a human being, of a specific personal entity. Nor could any list of ten thousand such items be even near complete. Let us, nevertheless, set down for what they are worth a few points:

Eve White	Eve Black
Demure, retiring, in some respects almost saintly	Obviously a party girl. Shrewd, childishly vain, and egocentric
Face suggests a quiet sweetness; the expression in repose is predominantly one of contained sadness	Face is pixie-like; eyes dance with mischief as if Puck peered through the pupils
Clothes: simple and conservative, neat and inconspicuously attractive	Expression rapidly shifts in a light cascade of funloving willfulness. The eyes are as inconstant as the wind. This face has not and will never know sadness. Often it reflects a misleading and only half-true naïvete
Posture: tendency to a barely discernible stoop or slump. Movements careful and dignified	Voice a little coarsened, "disculturred," with echoes or implications of mirth and teasing. Speech richly vernacular and liberally seasoned with spontaneous gusts of rowdy wit
Reads poetry and likes to compose verse herself	A devotee of pranks. Her repeated irresponsibilities have cruel results on others. More heedless and unthinking, however, than deeply malicious. Enjoys taunting and mocking the Siamese alternate
Voice always softly modulated, always influenced by a specifically feminine restraint	All attitudes and passions whim-like and momentary. Quick and vivid
Almost all who know her express admiration and affection for her. She does not provoke envy. Her strength of character is more passive than active. Steadfast on defense but lacking initiative and boldness to formulate strategy of attack	
An industrious and able worker; also a competent housekeeper and a skillful cook. Not colorful or	

Eve White	Eve Black
glamorous. Limited in spontaneity	flares of many light feelings, all ephemeral
Consistently uncritical of others. Tries not to blame husband for marital troubles. Nothing suggests pretense or hypocrisy in this charitable attitude	Immediately likeable and attractive. A touch of sexiness seasons every word and gesture. Ready for any little, irresponsible adventure
Though not stiffly prudish and never self-righteous, she is seldom lively or playful or inclined to tease or tell a joke. Seldom animated	Dress is becoming and a little provocative. Posture and gait suggest light-heartedness, play, a challenge to some sort of frolic
Her presence resonates unexpressed devotion to her child. Every act, every gesture, the demonstrated sacrifice of personal aims to work hard for her little girl, is consistent with this love	Never contemplative; to be serious is for her to be tedious or absurd
Cornered by bitter circumstances, threatened with tragedy, her endeavors to sustain herself, to defend her child, are impressive	Is immediately amusing and likable. Meets the little details of experience with a relish that is catching. Strangely "secure from the contagion of the world's slow stain," and from inner aspect of grief and tragedy
This role in one essentially so meek and fragile embodies an unspoken pathos. One feels somehow she is doomed to be overcome in her present situation	Reports that her skin often reacts to nylon with urticaria. Usually does not wear stockings when she is "out" for long periods
No allergy to nylon has been reported	

It is not possible here even to summarize the history of each personality that emerged and accumulated over the months, or to describe the varied and multiplex complications that arose to tax, and often to baffle and overwhelm, the therapist's efforts. Let us note briefly a few scattered items.

In contrast with the interesting case reported by Erickson and Kubie (6), the secondary personality, Eve Black, has shown anything but a regular desire to help the other with her problems. The considerably submerged and dissociated manifestations referred to by Erickson and Kubie as Miss Brown apparently expressed themselves only through the medium of automatic writing. And this writing was so verbally imperfect and abstruse that considerable interpretation or translation was necessary to promote even limited communication. Nevertheless, whatever the influence designated by the term *Miss Brown* may represent, it consistently worked to aid the accessible personality, Miss Damon. It was a therapeutic influence (6).

Efforts to interest Eve Black in taking a similar role met with grim obstacles. Many of these, as can be imagined, were not unlike what impedes and frustrates the psychiatrist who tries to help a typical psychopath deal more constructively with his own problems, to find real goals and to develop normal evaluations. New toys or games can sometimes serve to arouse briefly the interest of a capricious child. So, too, the therapist occasionally

was able to enlist Eve Black's support in some remedial aim directed towards the problems of her body's coinhabitant. Sometimes attaining in her even an attitude of neutrality was of value. What helpful acts or abstentions she could be induced to contribute have, however, been prompted, it seems, only by fleeting impulses such as casual curiosity, the playful redirection of a whim towards some pretty novelty. Often she has, by ingenious lies, misled the therapist to believe she was cooperating when her behavior was particularly detrimental to Eve White's progress.

No real or persistently constructive or sympathetic motivation has yet been induced in the irresponsible Eve, but one valuable means of influencing her is in the hands of the therapist. Though Eve Black has apparently been able since childhood to disappear at will, often doing this suddenly to leave the conscientious Eve with unpleasant consequences of misconduct and folly not her own, the ability to displace Eve White's consciousness and emerge to take control has always been limited. Sometimes she could "get out" and sometimes not. Since Eve White during treatment learned of the other's existence it has become plain that her willingness to step aside and, so to speak, to release the imp plays an important part in this alternate's ability to appear and express herself directly. Eve White cannot keep the other suppressed permanently or count with certainty on doing this for some given period. Her influence, and indirectly that of the therapist, have, however, been sufficiently strong to use for bargaining with Eve Black for better cooperation. If she will avoid the more serious forms of misconduct she is rewarded with more time "out."

Even when invisible and inaccessible she, apparently, has means of disturbing Eve White. She tells us she caused those severe headaches that brought the latter to us as a patient. Her unsuccessful struggle to get out often produces this symptom in the other. So too, she explains that the hallucinatory, or quasi-hallucinatory, voice which Eve White heard before the other Eve disclosed herself to us was her deliberate work.

From the two Eves during many interviews and from her husband and parents, we in time obtained a great deal of information about the patient. Having concluded we had a reasonably complete and accurate history of her career since early childhood, we were astonished by the report of a distant relative who insisted that a few years before she met her present husband a previous marriage had occurred.

Eve White denied this report and has never yet shown any knowledge of it. To our surprise Eve Black also maintained that we had been misinformed, insisting that Eve White had married only once, that she herself had never and would never consider marrying any man.

Finally, under the persistent pressure of evidence, Eve Black gave up her position, admitted that the relative's report was correct, that she herself and only she had been the bride. This event she told us occurred several years before Mrs. White's marriage. While the other Eve was employed

in a town some distance from her parents' home she had come "out" and gone to a dance with a man she scarcely knew. After a night of merriment, something was half-jokingly mentioned about the pair getting married more or less for the hell of it. This apparently struck her fancy.

She has recounted many details of outlandish strife and hardship during several months when, apparently, she had lived with this man. No record of a legal union has been obtained but considerable evidence indicates she did cohabit during this period with such a man as she describes, perhaps under the careless impression that a marriage had really occurred. She insists that some sort of "ceremony" was performed, saying that it was not formally recorded and admitting it may have been a ruse. During this time when she regarded herself as wed, Eve Black enjoyed her longest periods of uninterrupted sway. She was predominantly in control, almost constantly present. Apparently she had no desire for sexual relations but often enjoyed frustrating her supposed husband by denying herself to him. He in turn, she says, was prone to beat her savagely. She claims to have succeeded in avoiding most of the pain from this by "going in" and leaving the other Eve to feel the blows.

This last claim immediately impressed us both as extremely implausible. If Eve White experienced the pain and humiliation of these beatings, why did she not remember them? She has consistently denied any memory of the entire marital or pseudomarital experience reported by Eve Black. Our unreliable but convincing informant maintains that she herself remained in control or possession nearly all the time during this adventure. She furthermore insists that she can, by exerting a considerable effort, often "pick out" or erase from Eve White's reach certain items of memory. "I just start thinking about it very hard," Eve Black says, "and after a while she quits and it doesn't come back to her anymore." All awareness of the beatings she claims so to have erased from the other's recollection. Such a claim, obviously, was subject to testing by the therapist. Several experiments indicated that it is correct.

After approximately eight months of psychiatric treatment Eve White had apparently made encouraging progress. For a long time she had not been troubled by headaches or "blackout." The imaginary voice had never been heard again since the other Eve revealed herself to the therapist. Mrs. White worked efficiently at her job and had made progress financially through salary raises and careful management. The prospect of returning to her husband and of working out a bearable relation was still blocked by serious obstacles, but, having achieved more personal security and financial independence, she had become more hopeful of eventually reaching some acceptable solution. Though sadly missing the presence of her child, she found some comfort in her successful efforts to provide for her. She had made friends in the once strange city and with them, despite many worries and responsibilities, occasionally enjoyed simple recreations.

Meanwhile Eve Black, though less actively resisted in emerging, had in general been causing less trouble. Being bored with all regular work, she seldom "came out" to make careless and costly errors, or indulge in complicating pranks while the breadwinner was on her job. Though in leisure hours she often got in bad company, picked up dates, and indulged in cheap and idle flirtations, her demure and conventional counterpart, lacking knowledge of these deeds, was spared the considerable humiliation and distress some of this conduct would otherwise have caused her.

At this point the situation changed for the worse. Eve White's headaches returned. They grew worse and more frequent. With them also returned the "blackouts." Since the earlier headaches had been related to, perhaps caused by, the other Eve's efforts to gain control, and the "blackouts" had often represented this alternate's periods of activity, she was suspected and questioned. She denied any part or influence in the new development. She did not experience the headaches, but, suprisingly, seemed now to participate in the blackouts, and could give no account of what occurred during them. Apparently curious about these experiences, she said, "I don't know where we go, but go we do."

Two or three times the patient was found lying unconscious on the floor by her roommate. This, so far as we could learn, had not occurred during the previous episodes reported by Eve White as "blackouts." It became difficult for her to work effectively. Her hard-won gains in serenity and confidence disappeared. During interviews she became less accessible, while showing indications of increasing stress. The therapist began to fear that a psychosis was impending. Though this fear was not, of course, expressed to Eve White, it was mentioned to her reckless and invulnerable counterpart. The fact was emphasized that, should it be necessary to send Eve White to an institution, the other, too, would suffer the same restrictions and confinement. Perhaps, the therapist hoped, this fact would curtail her in any unadmitted mischief she might be working.

Since it has for long been presumed that so-called dual personalities arise from a dissociation of an originally integrated entity of functioning and experience, efforts were naturally exerted from the first to promote reintegration. Attempts were made with each Eve to work back step by step into early childhood. With Mrs. White hypnosis was sometimes used to regain forgotten events or aspects or fragments of experience. It was hoped that some link or bridge might be found on which additional contact and coalition could grow or be built. Under hypnosis she occasionally re-experienced considerable emotion in recalling events of her childhood. We have never been able to hypnotize Eve Black.

It soon became possible for the therapist to evoke either personality at will. During the first few weeks a transition from Eve White to Eve Black was more easily achieved by hypnosis. Shortly afterwards it became possible to simplify the procedure. Permission and the promise of coopera-

tion were obtained from the lady present. Then the other was called by name and invited or encouraged to emerge. With repetition, and with deepening emotional relations between patient and physician, this process became after a while very easily accomplished. In the very early stages of treatment an effort was made, perhaps a too naive effort, to promote some sort of blending, or at least a liaison, by calling out both personalities at once. To this attempt Eve White reacted with violent headache and emotional distress so severe that it was not considered wise to continue. When the experiment was reversed, with the apparently invulnerable Eve Black manifest, much less agitation was observed. After one unsuccessful trial, however, she bluntly refused to go further. In explanation she said only that it gave her "such a funny, queer, mixed-up feeling that I ain't gonna put up with it no more."

Sometime after the return of headaches and blackouts, with Eve White's maladjustment still growing worse generally, a very early recollection was being discussed with her. The incident focused about a painful injury she had sustained when scalded by water from a wash pot. As she spoke her eyes shut sleepily. Her words soon ceased. Her head dropped back on the chair. After remaining in this sleep or trance perhaps two minutes her eyes opened. Blankly she stared about the room, looking at the furniture and the pictures as if trying to orient herself. Continuing their apparently bewildered survey, her eyes finally met those of the therapist, and stopped. Slowly, with an unknown husky voice and with immeasurable poise, she spoke. "Who are you?"

From the first moment it was vividly apparent that this was neither Eve White nor Eve Black. She did not need to tell us that. The thousands of points distinguishing the two Eves have grown more clear and convincing as we acquire additional experience with each. So this new woman with time and study has shown herself ever more plainly another entity. Only in a superficial way could she be described as a sort of compromise between the two. She apparently lacks Eve Black's obvious faults and inadequacies. She also impresses us as far more mature, more vivid, more boldly capable, and more interesting than Eve White. It is easy to sense in her a capacity for accomplishment and fulfillment far beyond that of the sweet and retiring Eve White, who, beside this genuinely impressive newcomer, appears colorless and limited. In her are indications of initiative and powerful resources never shown by the other. This third personality calls herself Jane, for no particular reason she can give. In her it is not difficult to sense the potential or the promise of something far more of woman and of life than might be expected from the two Eves with faults and weaknesses eliminated and all assets combined.

Some weeks after Jane emerged, to make a group of three patients, electroencephalographic studies were conducted.

Report of Electroencephalogram

This tracing consists of 33 minutes of continuous recording including uninterrupted intervals of 5 minutes or more of each personality as well as several transpositions The record was made with a Grass Model 111 EEG machine (8 channels) under conditions standard for this laboratory

Each personality shows intervals of alpha rhythm interspersed with periods of diffuse low voltage fast activity Intervals of LVF are presumably associated with periods of mental tenseness, which the patient admitted experiencing Although it is possible that these periods occurred at random, tenseness is most pronounced in Eve Black, next in Eve White and least of all in Jane Several EEG's would be needed to show this to be a constant relationship

When alpha rhythm occurs (relaxation), it is steadily maintained at $10\frac{1}{2}$ to $11\frac{1}{2}$ cycles per sec by Eve White and by Jane Eve Black's alpha is increased in rate of 12 or 13 cycles per sec generally at $12\frac{1}{2}$ This increase is significant and falls at the upper border of normal limits approaching an I I category It is interesting to note that I I records are fairly common in psychopathic personality although no consistent correlation has yet been demonstrated In addition to the increased rate there is evidence of restlessness and generalized muscle tension during Eve Blacks tracings which are not observed in the other two personalities

Transposition is effected within a few seconds It is usually accompanied by artifact from eye movements and slight body movements Alpha rhythm is frequently blocked for several seconds during and following transposition Alpha blocking was most pronounced in passing from Eve White to Eve Black It did not occur at all in transposition from Eve Black to Eve White This might possibly suggest that transposition from Eve Black to Eve White is easier to effect However only two such transpositions are recorded

No spikes, abnormal slow waves or amplitude asymmetries are recognized

Summary

All three personalities show alternate periods of alpha rhythm and low voltage fast activity, presumably due to alternate periods of mental relaxation and mental tenseness The greatest amount of tenseness is shown by Eve Black Eve White next and Jane least Eve Black shows a basic alpha rate of $12\frac{1}{2}$ cycles per sec, as compared with 11 cycles per sec for Eve White and Jane This places Eve Blacks tracing on the border line between normal and slightly fast (I I) Slightly fast records are sometimes (but not consistently) associated with psychopathic personality Eve Blacks record also shows evidence of restlessness and muscle tension Eve Black's EEG is definitely distinguished from the other two and could be classified as border-line normal Eve Whites EEG probably cannot be distiguished from Jane's—both are clearly normal

For several months now there have been three patients to interview and work with. Jane has awareness of what both Eves do and think but incomplete access to their stores of knowledge and their memories prior to her emergence upon the scene. Through her reports the therapist can determine when Eve Black has been lying. Jane feels herself personally free from Eve White's responsibilities and attachments, and in no way identified with her in the role of wife and mother. Apparently she is capable of compassion, and, we feel likely, of devotion and valid love. She has cooperated with sincerity, and with judgment and originality beyond that of the others. Though it took her a while to learn what was quite new to her, she has already taken over many of Eve White's tasks at work and at home in efforts to relieve and help her. Her feelings towards Eve's little girl appear to be those of a wise and richly compassionate woman towards the child of a family not her own, but still a child in emotional privation.

Her warm impulses to take a more active role with this little girl are complicated by the deep conviction that she must not in any way act so as to come between the distressed mother and her only child. During the few months of her separate existence Jane has, one might say, become stronger and more active. Despite her fine intelligence she began without experience, or at least without full access to the experience of an adult. As time passes Jane stays "out" more and more. She emerges only through Eve White, never yet having found a way to displace Eve Black or to communicate through her. Almost any observer would, we think, find it obvious that Jane, and she only of the three, might solve the deepest problems that brought the patient we call Eve White to us for treatment. Could Jane remain in full possession of that integrated human functioning we call personality our patient would probably, we believe, regain full health, eventually adjust satisfactorily, perhaps at a distinctly superior level, and find her way to a happy life.

Should this occur it seems very unlikely that Mr. White's wife would ever return to him. On the other hand it is little more likely that Eve White, even if she becomes free of all that she has known as symptoms, could or would ever take up her role again as wife in that marriage. Should she try to do so, it is difficult to foresee much happiness for her or the husband. The probability of deep and painful conflict is apparent, also the real danger of psychosis.

Were we impersonal arbiters in such a matter it would be easy to see, and to say, that the only practical or rational solution to this astonishing problem is for Jane to survive, and Jane only. A steadily prevailing Eve Black would indeed be a travesty of woman. The surface is indeed appealing, but this insouciant and likable hoyden, though perhaps too shallow to become really vicious, would, if unrestrained, forever carry disaster lightly in each hand.

The sense of duty, the willingness for self-sacrifice, so strong and so beautiful in Eve White, might bring her back repeatedly into this marital situation which she lacks the emotional vigor to deal with, and in which it is not likely she could survive. Jane, whose integrity, whose potential goodness, seems not less than that of Eve White, has rich promise of the power to survive, even to triumph against odds.

It is perhaps unnecessary to point out that we have not judged ourselves as wise enough to make active decisions or exert personal influence in shaping what impends. It is plain that, even if we had this wisdom, the responsibility is not ours. Would any physician order euthanasia for the heedlessly merry and amoral but nevertheless unique Eve Black? If so, it is our belief, it could not be a physician who has directly known and talked for hours with her, not one who has felt the inimitable identity of her capricious being.

A surviving Jane would provide for Eve White's half-lost little girl a maternal figure of superb resources.[4] Perhaps in time she could give the child a love as real and deep as that of the mother herself. Perhaps. But would those feelings be the actual and unique feelings that have sustained the frail and tormented Eve White in her long, pathetic, and steadfast struggle to offer the child a chance for happiness? It may be said that this is foolish and tedious quibbling, that Jane after all, *is* the girl's real mother. Was she not born of her body? All awareness of her as a daughter ever experienced by Eve White is recorded in the electrochemical patterns of Jane's brain. True indeed. But *is* she her mother? Those who have known Eve White personally will find it hard to accept simple affirmation as the whole truth. What this whole truth is can be better sensed in direct feeling than conveyed by explanation.

At a distance bridged only by printed or spoken words these "beings"

[4] A question of the psychotherapist's responsibility has been raised. Morton Prince has been accused by some, particularly by McDougall, of taking too active a part in "squeezing out" Sally. Our experience made us feel very keenly the wish not to exert pressures arbitrarily and perhaps play a part in the extinction of qualities possibly of real value if they were integrated into more responsible patterns of behavior. We believe there is some choice open to the psychiatrist as to which personality he will try to reinforce, but that he must be tentative and work along with developments within the patient (or patients?) rather than make full and final judgments.

We feel that therapy has played a part in the emergence of Jane, but we do not consider her merely our creation. Our influence seems to have been more catalytic than causal. Psychotherapy has not been directed according to an arbitrary plan Although we have persistently investigated early experiences through all three manifestations of our patient, and have encouraged emotional reaction to them, we have sought to avoid insistence on any of the popular theoretical forms of interpretation.

Jane continues to grow in influence, to be out more and more. She has established contact with some events in the early life of Eve White, and seems more rooted in a past. We cannot predict with any great confidence the outcome, but we are hopeful that some reasonably good adjustment will work out through the capacities contributed by Jane.

may appear as factitious abstractions. In the flesh, though it is the flesh of a single body, one finds it more difficult so to dismiss them. Final decisions, or choices in the course of involuntary developments must, we have decided, be offered freely to something within our patient, perhaps to something beyond any levels of contact we have reached with Eve Black, with Eve White, or with Jane.

Jane, who appears to have some not quite articulate understanding or purblind grasp of this whole matter, not available to either of the Eves, shares our sharp reluctance about participating in any act that might contribute to Eve White's extinction. Unlike Eve Black, Jane has profound and compassionate realization of Eve White's relation to her child. The possibility, the danger, of a permanent loss of all touch with reality has occurred to Eve White Through this we have found a better appreciation of her feelings as a mother. Too restrained ordinarily by modesty to speak about such a matter, after hypnosis she offered in quiet tones of immeasurable conviction to accept this extinction if it might win for her daughter Jane's presence in the role she had not succeeded in filling adequately for her child.

It has been said that a man must first lay down his life if he is to truly find it. Is it possible that this mother may, through her renunciation, somehow survive and find a way back to the one and dearest thing she is, for her child's sake, ready to leave forever? That we do not know. Long and intimate personal relations with this patient have brought us to wonder if in her we have blindly felt biologic forces and processes invisible to us, still uncomprehended and not quite imaginable.

Recently Eve White, anything but a physically bold or instinctively active person, was challenged suddenly by an event, for her momentous. Of this Jane, deeply moved, wrote to the therapist:

> Today she did something that made me know and appreciate her as I had not been able to do before. I wish I could tell her what I feel but I can't reach her She must not die yet There's so much I must know, and so very much I must learn from her. She is the substance of, *this above all to thine own self be true* In her, too, *the quality of mercy is not strained* I want her to live—not me!
>
> She saved the life of a little boy today Everybody thought him to be her child, because she darted out in front of a car to pick him up and take him to safety But instead of putting him down again, the moment his baby arms went around her neck, he became her baby—and she continued to walk down the street carrying him in her arms.
>
> I have never been thus affected by anything in my four months of life There seemed only one solution to prevent her possible arrest for kidnapping That was for me to come out and find the child's mother. In the end I had to give him to a policeman. Later tonight when she had come back out, she was searching for her own baby. She had her baby again for a short while this afternoon; and I'm so happy for that. I still can't feel Eve Black. I can't believe she's just given up. *I feel inexpressibly humble.*

Discussion

What is the meaning of the events we have observed and reported? Some, no doubt, will conclude that we have been thoroughly hoodwinked by a skillful actress. It seems possible that such an actress after assiduous study and long training might indeed master three such roles and play them in a way that would defy detection. The roles might be so played for an hour, perhaps for a few hours. We do not think it likely that any person consciously dissimulating could over months avoid even one telltale error or imperfection. Though this does not seem likely to us, we do not assume it to be impossible. Let us remember, too, that in plays the actors are given their lines, and their roles are limited to representations of various characters only in circumscribed and familiar episodes of the portrayed person's life. The actor also has costume and make-up to help him maintain the illusion.

Have we, others may ask, been taken in by what is no more than superficial hysterical tomfoolery? We would not argue that the psychopathology presented here has nothing in common with ordinary hysterical conversions and dissociations. We do believe that here there is also something more, and something different. If one is to regard these three manifestations of personality as products of disintegration, could such a presumed disintegration be schizophrenic, or perhaps incompletely schizoid? If the process is akin to the processes of schizophrenia, it must still be noted that none of the three products, not one of the three personalities, shows anything suggesting the presence of that disorder. Are we justified in postulating a once unified whole from which our three performers were split off? Or is it possible that the functional elements composing each, as we encounter them at present, have never in the past been really or completely unified?

The developmental integration of what we call personality appears to be a complex process of growth or evolution, a not-too-well comprehended unfolding of germinal potentialities. Let us compare such a process with the zygote's course from microscopic unicellular entity to adult human being. Reviewing the biologic course of identical twins we come at length to cellular unity in the single zygote. Perhaps we must assume in the multiple personalities at least a primordial functional unity. If so, is it possible that some division might have begun far back in the stage of mere potentialities, at preconscious levels of growth not accessible to us except in surmise or theory? If so, what chance is there that an adequate integration may occur?

One might from our verbal account easily see, or read into, the character Jane some fusion of, or even a mere compromise between, the diverse tendencies of the two Eves. If she has, indeed, been formed of their sub-

stance it is difficult for us to assume that the process was merely additive. If all her elements derive from the other two, this union, like that of hydrogen and oxygen to make water, seems to have resulted in a product genuinely different from both the ingredients from which it was formed.

Have we in our many hours of enthusiastic work with this patient gradually lost ourselves, and our judgment, in an overdramatization of the subject? Are we reporting what is objective, or chiefly the verbal forms of our surmises and speculations? It is not for us to give the final answer to these questions. We are aware that the only terms available to indicate what we think is valid carry also many connotations that we do not assume or believe to be supported by fact (27).

Obviously the differing manifestations we have observed in one woman's physical organism do not, in all senses of the term, indicate three quite separate people. Our words referring to the possible disappearance or permanent extinction of one of the personality manifestations perhaps imply we regard this as an equivalent, or at least an approximation, of death. Are we guilty of a misleading exaggeration? No heart would stop beating should this occur. No eyes would permanently close. No flesh would undergo corruption. Such an extinction would not fulfill the criteria by which death is defined. Yet, if we may ask, would his immediate replacement by an identical twin invalidate for a bereaved widow the death of her husband? This analogy is not precise. In some respects it is misleading. It does not give us an answer to the question we raise. Perhaps it may, nevertheless, accurately reflect some of our perplexity.

For these and for many other questions that have confronted us in this study we have no full or certain answers. We ask ourselves what we mean by referring to that which we have observed by such a term as *multiple personality?* Immediately we face the more fundamental question: What is the real referent of this familiar word *personality?* In ordinary use we all encounter dozens of unidentical referents, perhaps hundreds of overlapping concepts, all with vague and elusive areas extending indefinitely, vaguely fading out into limitless implications (28).

Any day we may hear that John Doe has become a *new man* since he quit liquor three years ago. Perhaps we tell ourselves that Harvard actually made a *different person* of that boy across the street who used to aggravate all the neighbors with his mischievous depredations. Many religious people describe the experience of being *converted* or *born again* in terms that to the skeptical often seem chiefly fantastic.

With considerable truth, perhaps, it may be stated that after her marriage Mary Blank *changed,* that she has become *another woman.* So, too, when a man's old friends say that since the war he has not been the *same fellow* they used to know, the statement, however inaccurate, may indicate something real. We hear that an acquaintance when drinking the other night was *not himself.* Another man, we are told, *found himself* after his father

lost all that money. Every now and then it is said that a certain woman's absorption in her home and children has resulted in her losing her *entire personality.* Though such sayings are never taken literally, there is often good reason for them to be taken seriously.

Are they not exaggerations or distortions used to indicate very imperfectly what is by no means totally untrue but what cannot be put precisely, or fully, into words? The real meaning of such familiar statements, however significant, helps us only a little in explaining what we think we have encountered in the case reported. Some relation seems likely, as one might say there is some relation between ordinary vocal memory or fantasy and true auditory hallucinations.

Though often distinguished from each of the other terms, "personality" is sometimes used more or less as a synonym or approximation for "mind," "character," "disposition," "soul," "spirit," "self," "ego," "integrate of human functioning," "identity," etc. In common speech it may be said that John has a good mind but no personality, or that Jim has a wonderful personality but no character, etc. Often this protean word narrows (or broadens) in use to indicate chiefly the attractiveness, or unattractiveness, of some woman or man. In psychiatry its most specific function today is perhaps that of implying a unified total, of indicating more than "intelligence," or "character," more than any of the several terms referring with various degrees of exactness to various qualities, activities, responses, capacities, or aspects of the human being. In the dictionaries, among other definitions, one finds "individuality," "quality or state of being a person," "personal existence or identity."

There is, apparently, no distinct or whole or commonly understood referent for our word "personality." It is useful to us in psychiatry despite its elasticity, often because of its elasticity. If they are to be helpful all such elastic terms must be used tentatively. Otherwise they may lead us at once into violent and confused disagreement about what are likely to be imaginary questions, mere conflicts of arbitrary definition (14). Bearing this in mind we feel it proper to speak of Eve Black, Eve White, and of Jane as three "personalities." Perhaps there is a better term available to indicate the manifestations of this patient. If so we are indeed prepared to welcome it, with enthusiasm and with relief.

Our study has raised many questions. Even for us it has settled few if any. The relatively slight or inconclusive differences between the personalities of our patient noted electroencephalographically, and in psychometric and projective tests, are not particularly impressive beside the profound and consistent differences felt subjectively in personal and clinical relations. A well-qualified expert examined for us the handwriting performed by each Eve. Though considerably impressed by consistent and significant differences between the two productions, it is his opinion that those with adequate professional training could regularly establish sufficient

evidence to show both were done by the same human hand. After a detailed investigation this conclusion was expressed by our consultant:

> As a conclusion of the opinions derived from analysis of the various handwritings of this multiple personality patient, it is believed that the handwriting does not undergo complete subordination to each marked change of personality, even though each group exhibits evidence of emotional instabilities. It readily appears the handwriting of each personality is of a different person. Such apparent or discernible variations may lead the untrained observer to believe that the handwriting of each personality is completely foreign to the other. However, extensive investigation of these handwriting materials established beyond any doubt that they have been written by one and the same individual. Nothing was found to indicate a wilful and conscious intent to disguise writings executed within a personality or between the first and second personalities.
>
> Ward S. Atherton, Captain, Military Police Corps, U. S. A.
> Chief, Questioned Document Section,
> Army Provost Marshal General's Criminal Investigation Laboratory, Camp Gordon, Georgia.

Though unable at present to add anything significant to the hypotheses that were offered in the past by those who have worked with similar patients, we find ourselves singularly stimulated by our direct experience with this case. If we have not so far devised final or even fresh answers we have at least been prompted to ask ourselves a number of questions. A few of these, even when put in verbal forms outwardly familiar, we find to our surprise have somehow become new to us and peculiarly stimulating.

Though long acquainted in a general and indirect way with Morton Prince's celebrated studies, we both deliberately refrained for months after beginning work with our case from reading *The Dissociation of a Personality* (23) and *Clinical and Experimental Studies in Personality* (24). We hoped, in this way, to avoid projecting the conclusions and conceptions of another into what we encountered.

After having noted what is recorded here, we compared our experience with what Prince observed and discussed in cogent detail approximately fifty years ago. The popular terminology and theory of psychiatry today differ considerably from the explanations and hypotheses of behavior offered by the physician who wrote so impressively of Miss Beauchamp and of other matters.

Most of us believe, no doubt, that psychiatry and psychology have advanced marvelously since the turn of the century. In many respects this belief is unchallengeable. In many respects, yes; but in all?

In this half-century of progress have we not also developed some habits of thinking that may confuse us? Have we perhaps unwittingly enshrined as sacred dogma many concepts that obscure or distort more than they

reveal? Long sanctified verbal constructs, flabby theoretical abstractions are manipulated with a bold flourish in many of our treatises and monographs, presumably in the name of science. In tedious polysyllabic jargon we read today of electrochemical libidos undergoing gelatinization (15), of parental imagos cannibalistically devoured per os and sadistically expelled per annum (7). Such terms as "proved," "so-and-so has established," "clearly demonstrated," etc. have become in our time more popular as synonyms for fantasy and speculation than Morton Prince found them (3, 7, 15, 21).

How much can we congratulate ourselves on having advanced in the last fifty years if many of our leading authorities still find themselves bound to write in ponderous volumes of "actual neuroses" and solemnly contrast these revered artifacts with "psychoneuroses" (7). Is it progress if we establish the universality of castration fear, and its supreme significance, be redefining "castration" to mean all parental and social forces that tend to restrict or direct genital activity (5)? By this method any point of doctrine regarded as too holy for questioning could indeed be proved valid. But, who will say that thereby we have revealed anything not already well known to a twelve-year-old moron? So, too, we can immediately demonstrate that all women are to a remarkable extent homosexual if we piously agree that no impulse to activity, no courageous response, can be classified as other than purely masculine (10, 18). In recent issues of a reputable medical journal we read how an adult's dream "proves" intrauterine emotional trauma, and demonstrates profound personal relations between embryo and placenta. The investigators warn the reader that "resistance" may cripple his ability to evaluate the plain evidence presented, may disqualify him from scientifically appraising these discoveries (8, 21, 22). Is it not our responsibility as psychiatrists to examine frankly such developments as these and to ask ourselves what sort of progress we are making?

Who can doubt that since the case of Miss Beauchamp was so carefully studied reliable knowledge in the field of psychiatry has accumulated. Psychologic theory, "dynamic" interpretation of personality disorder, has moved to points far more ambitious than those reached by Morton Prince. One need not deny that much of this progress has been helpful, a genuine advance, to wonder if the movement has not also sometimes veered considerably from the direction of what is true or even plausible, and even occasionally spent much of itself in enthusiastic but circular expeditions about areas scarcely distinguishable from dianetics and other swamplands of veritable nonsense (12).

Be this as it may. We suggest that further direct study of multiple personality and careful reappraisal of Morton Prince's generally neglected formulations may yet yield to workers in our field some promising clue still over-looked, a clue perhaps to possible discoveries that may eventually yield insight we need but lack today.

4

Psychological Aspects of Spirit Possession[1]



Walter Mischel and Frances Mischel

The Problem

Spirit possession is known to occur in many areas of the world. Chief among these is Africa, particularly the West Coast, where "possession by the God (is) the supreme religious experience" (Herskovits 1941:215). The Negroes in the New World have to a great extent retained their African forms of worship in the West Indies and parts of South America. In these areas are found large syncretic groups, such as Vodun in Haiti (Simpson 1940, 1945), Shango in Trinidad (Herskovits 1947: Appendix I), the Macumba in Rio, the Candomblé of Bahia (Ramos 1939; Pierson 1942), and others. Spirit possession plays a major role in all of them. A less exotic form of possession, but still potentially part of the same phenomenon, occurs in the Negro (and white) Pentecostal and Revivalistic churches in many parts of the United States (Fauset 1944; Myrdal 1944; Holt 1940); shamanism and related rituals among many Indian groups may also be considered as a form of spirit possession. Despite the apparently wide distribution of this behavior, little other than fairly limited physical descriptions of possession have thus far been offered by social scientists. Historically, this behavior, at least in Western culture, has been

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[1] The research upon which this paper is based was conducted by the authors in Trinidad during the months of June to September, 1956. Thanks are due to the Wenner-Gren Foundation for Anthropological Research, whose aid in the form of a predoctoral fellowship to the junior author made this research possible. The authors wish to express their gratitude to the Department of Sociology and Anthropology, Ohio State University, for their cooperation and help. Special thanks are due to John W. Bennett and Erika E. Bourguignon, whose comments and criticisms have been of great value.

interwoven with interpretations of mental illness, demonology, and the like (Oesterreich 1930). More recently, an interpretation has been offered which stresses the mental illness of individuals who become possessed, and the therapeutic value of the possession experience (Courier 1956).

In view of the lack of systematic study, a detailed description of spirit possession behavior will first be offered. The reference group throughout will be the Shango worshippers in Trinidad.[2] Following this, we shall attempt a tentative analysis of possession behavior from a psychological viewpoint, primarily guided by learning theory. Here we shall explore some of the major positive and negative reinforcements which appear to be the consequences of particular behavior patterns during possession.

Description of Possession

An Illustration

The following description of one example of spirit possession is offered to illustrate some of the physical manifestations of this kind of behavior. A fairly typical case in Trinidad's Shango group is "Tanti" under possession by Ogun-St. Michael.[3] With this specific example as our reference point, we shall then indicate the range and variability of the behavior.

Tanti is a short, powerfully built, heavy-set woman in her middle forties. Her skin color is medium brown, her hair is short and kinky and generally covered by a head tie. Nothing in her behavior when in the nonpossessed state particularly distinguishes her from other Trinidadian woman of her age and class. She appears to be a pleasant-mannered, verbal, intelligent, and highly active person.

[2] Our sample consisted of one major group of Shango worshippers which included 24 leaders, each with his own establishment. Of these, six leaders with their followings were intensively studied by means of observation of Shango "feasts," interviews, and projective testing.

[3] The Shango group is historically derived from the religious beliefs found among the Yoruba of Nigeria. The New World belief system has incorporated Roman Catholicism, and Yoruba gods have become identified with Catholic saints. A major ceremony or "feast" is given by each leader once a year and, since there are many leaders, the participants go from ceremony to ceremony throughout the island. During a "feast," which lasts for four consecutive nights followed by another ceremony one week later, the gods are called by means of singing and drumming. There may be as many as two hundred people present at a ceremony, but few are active participants. Individuals who become possessed frequently by important gods and who have the financial means, usually receive a call through a dream or vision to become leaders. Leaders not only give the "feasts" but many of them are involved in "bush doctoring," i.e., dispensing herbal medicines, giving advice, and the like. With the exception of a few dominant followers who for one reason or another have not become leaders, generally through lack of financial means, the remaining people

When the "spirit begins to manifest on" or "catch" Tanti, a dramatic physical transformation takes place. If in a standing position, she staggers, appears to lose her balance, begins to sway (bending her body forward and backward rhythmically), and may fall either to the ground or into the arms of bystanders. Her entire body begins to vibrate, while her arms are either rigid at her sides or stretched out above her. Her feet are planted widely apart and she may lurch back and forth from toe to heel. The vibrations increase in intensity, and somewhat resemble the convulsions of a seizure state. At the same time, she emits deep grunts and groans Her jaw begins to protrude, her lips pout and turn down sharply at the corners, her eyes dilate and stare fixedly ahead. An expression of masculinity and fierceness envelops her face. She rises from the ground or breaks away from her supporters. She dresses herself, or is dressed by others, in the costume and implements appropriate to the power possessing her. (In this case, as Ogun-St. Michael, she dons a red head-tie and waist-band, and selects a cutlass or sword and bottles of olive oil as her implements.) In the standing position her stomach and pelvis are thrust forward, her head and shoulders are thrown back, legs wide apart, hands on hips. The entire posture is quite rigid. At this point the spectators recognize that full possession by the particular power has occurred. From then on the individual who is possessed, the "horse," becomes identified with the power, and is referred to and treated as such.

The particular gait and/or dance, as well as other elements of behavior which follow, are to some degree prescribed for the particular power who is manifesting, and vary considerably both for the different powers and within the varying interpretations given by different individuals to the same powers. In Tanti's behavior as Ogun, the gait is slow; as each leg

are well-wishers those who attend merely to watch, eat, and "pleasure their eyes."

Unusual terms are defined below in the sequence in which they occur in the text. A more detailed study of the Shango group may be found in Mischel 1957.

power refers to the god who possesses the individual and also to the individual once he is possessed by a god.

chapelle - a small "church" in which the sacred implements and chromolithographs of the saints are housed.

Orisha -- the Yoruban term for god. In Trinidad, "Orisha worker" refers to an active Shango participant, i.e., one who becomes frequently possessed, and "Orisha leader" to one who gives feasts regularly. The terms "Orisha" and "Shango" (the Yoruban god of thunder and lightning) are often used interchangeably as names for the group.

horse --the individual who receives a power; a person who becomes possessed is referred to as a horse of that particular power, e.g., a "St. Michael Horse."

obi -- a multifaceted seed used for purposes of divination.

tomb —a raised cement or earthen slab; used as memorial stones dedicated to different gods. Usually located in the courtyard.

palais —a thatched rectangular structure in which the ceremony takes place.

is extended there is a momentary rest on the toes or ball of the foot, a swaying of the leg, and finally a heavy step as the weight is placed on the heel. Throughout, the fixed stare is retained.

Range of Behavior under Possession: The "Work" of the Powers

The specific behavior in which a particular power may engage covers a wide range. The power may talk in a mixture of Patois, English, and nonsense syllables—for example, "bon soir tout monde . . . good, good, people me say Hilda big Shango woman . . . ooh . . . ooh . . . must live clean . . . bon, bon." The power, in the form of the possessed person, may alternately stalk about and dance to the drums when they are present, or "work" with implements, e.g., brandish a sword or pour oil, do divining, deliver messages, give advice, and prescribe medicines. The activities vary with the power, the individual under possession, and the circumstances during which possession (e.g., a formal ceremony, a private meeting in the *chapelle*, within one's home). At a formal feast some powers may manifest violently, hurling their horses to the ground and "making them" roll or writhe in the dust or dance with great agitation and force. Others may manifest very gently and behave benignly, greeting individuals in a friendly way by name, extending suggestions, questioning about health. Some require the undivided attention of the entire audience and engage in activities requiring the participation of everyone. Others are content to do their work unobtrusively in some corner simultaneously with the more dominant activities of other powers. Although each power is characterized by more or less unique patterns of behavior, these are sufficiently broad in range to permit virtually any interpretation or enactment by a specific horse within a particular manifestation. Thus, although there is a good deal of similarity in the behavior of the same power when manifested by different individuals, there is also a good deal of variety in interpretations of different horses, or even by any one horse at different times.

Range of Occurrence

Within one Shango ceremony in Trinidad, from none to twenty or more possessions may occur in the same night. Possession may never occur during the lifetime of an individual who regularly attends ceremonies, or it may occur five or more times in one night. The same individual may be possessed repeatedly by the same power, or by different powers at different times, or by different manifestations of the same power. The age of those experiencing possession ranges from 16 to 65. Although stories were told of small children in possession, no examples of this were seen. Most active participants are between 25 and 45; the majority of individuals who experience

possession are women (75 percent). A comparable sex ratio holds for those attending ceremonies without undergoing possession. The temporal duration of possession may be but a few moments; it is then referred to as "overshadowing," and shows only some of the characteristics described earlier. Excluding such "overshadowing," the duration may vary from ten minutes to five or more hours, with an average of somewhat less than one hour. Some of the more active participants may go from possession to possession, interspersed only by brief respites, for the duration of a four-day ceremony.

Induction of Possession; Immediate Factors

Of the numerous factors most immediately and directly involved in the induction of possession, the categorization into "falling with or without the drums" is most commonly made by the participants. "Falling with (or to) the drums" refers to possession in response to, or in the presence of, drumming. Drumming is an integral part of formal ceremonials. In combination with the crowd excitement, singing, darkness, candles, circular rhythmic dancing, and other ceremonial aspects, drumming engenders an atmosphere in which possession has become the expected, desired, and usual behavior. This is by far the most common immediate stimulus for possession. "Falling to the drums" occurs at the regularly scheduled "feasts" or "sacrifices," and it is here that the less active followers as well as the more dominant leaders and "old heads" have the opportunity to "manifest the powers."

In addition to individual responses to the drumming, the power may be "passed on" from person to person. Thus, those already in possession may approach bystanders and rub their heads, faces, chests, and arms, pour oil on them, pick them up, and hold them in the air, or the possessed person may spin onlookers by the waist. Such behavior is the final inducement to possession.

Possession without the stimulation of drumming and formal ceremony is much more rare and almost completely restricted to the *Orisha* leaders and dominant followers. Within this prestigeful group, possession may take place at any time and in almost any setting, but the following are examples of the more usual settings.

Dreams and vision may serve as the immediate stimulus. The individual may report such dreams or their interpretation through the power possessing him shortly after his dream or vision experience. The transition is often extremely short, the one following so quickly from the other that it is apparently an extension or expansion of it.

Leaders occasionally undergo possession to give medication, advice, aid in recovering lost objects, and other such functions outside the context of formal ceremonies. Virtually all leaders have regularly scheduled times

when they perform such functions for the multitudes who seek their help. On such occasions the leaders are sometimes said to be "in power," at least for brief periods. However, the behavior involved in such manifestation of power is quite different from that observed in connection with possession in response to drumming. There is less motor activity and less dramatic facial and behavioral change. Usually there is some dilation of the eyes. Changes in speech are less marked; the utterances are mostly in English, and primarily coherent. Persons who are "in power" are said to have a "special gift," but all the "old heads" and leaders are credited with this gift. A much higher value is attributed to this kind of possession. Leaders are said to be able to "get power" at any time because of their constant close association and communication with the powers. They "just concentrate" or "look for a time at the (statue of the) saint." Cult followers express different views on the nature of this kind of power. Some appear to interpret the leader as actually being in power or possessed; others appear to feel that the leader is "still himself" but by virtue of his "gift" is "always close to the powers," and thus able to communicate with them and interpret their wishes (by means of readings of the *obi* seeds and similar devices) without undergoing possession.

Another important stimulus is a crisis. The individual is apt to experience possession when confronted by serious marital or other interpersonal problems, by difficult decisions, by involvement in court cases, or by other severely frustrating or conflict-producing events. At such times, particular emphasis is placed on the messages and advice delivered by the power through the horse, as reported and reconstructed by the audience to the manifestation.

Finally, a form of possession known as "weré" occurs with some frequency. Individuals in this state are considered "messengers of the powers." Weré possession is a half-way state between full possession and normal behavior, and a high degree of consciousness is retained. It is marked by disobeying ceremonial regulations by such acts as smoking, swearing, or mocking sacred places by spitting on the *tombs* of the powers. The behavior becomes extremely childish; the possessed may speak with a marked lisp, wet or soil himself, and use vulgar language and gestures. He is treated tolerantly by onlookers, as one might treat a naughty but loved child. One person in this state maintained that he had just landed from "New York Thity" and that his plane was parked outside the gate. He cordially invited all available females to examine the inside of the plane with him (invoking gales of hysterical laughter from all present). Weré possession may or may not follow actual possession. Most often, an individual who has just been strongly possessed will manifest a weré, but many cases were also observed where the weré persons had not undergone a previous possession.

Although the weré is termed a messenger, he delivers no actual messages. The term indicates that a power sent the weré in his place, since the

former was "too busy to stay." Most weré possessions occur at the end of a feast after the drumming and dancing have ceased, and promote a gay and light-hearted atmosphere.

Levels of Possession

The level of possession (the depth, involvement, loss of control and consciousness, and intensity of behavior) is by no means constant, either among individuals or at different times with thé same person. At times it appears to consist merely of a brief "overshadowing" or momentary loss of control, dizziness, and a partial and temporary loss of consciousness. On other occasions, it involves an almost total and prolonged loss of consciousness and of many controls over motor behavior. However, even in the most extreme examples observed, the individual seemed to retain sufficient consciousness and control to permit him to behave without injury to self or others; that is, without stumbling over objects or mishandling implements. Further, the possessed individual appears to recognize those about him and may refer to them by name and make reference to known past experiences. He may also refer to himself by his secular name and allude to aspects of his daily life. On occasion, things that were expressed privately in the normal state are publicly reiterated or rephrased under possession. It should be emphasized that possession does not appear to be an all-or-none process, utterly separated from the individual's usual state. Rather, an extension and distortion of everyday behavior seems to be involved, and possession behavior cannot be rigidly dichotomized from the person's secular roles. It would appear more useful to deal with different levels of involvement in possession behavior rather than "possession" versus "normality."

Recovery from Possession

The manner of ending possession varies. Most often, a possessed person spins rapidly while standing in one place and suddenly falls to the ground. Onlookers immediately rush to his assistance, help him to a seat, and place water to his lips. In a few moments he regains command of himself and possession is over. At times, a very gradual cessation of activity, accompanied by shaking of the head or holding the head in the hands, indicates the end of possession. Although recovery occurs most often in the *palais,* some individuals, either alone or aided by others, run to the chapelle where they lie down on the floor and await the "power's going back." Occasionally an individual leaves the palais in order not to hear the drums, or he may signal the drums to stop so that the power will leave. In

such instances, this is interpreted as the power's refusal to stay at the feast because of activities which disturb him, or he is said to be "too busy" to remain.

We turn now to an examination of some of the reinforcement consequences of possession behavior.

Reinforcement Consequences

In accord with learning theory, it will be assumed that behavior during spirit possession, like any other behavior, is perpetuated only if it is in some way reinforcing or rewarding to those who exhibit it (Miller and Dollard 1950; Rotter 1954). This assumption by no means excludes the possibility that the same behavior may also have negatively reinforcing consequences, as is dramatically illustrated in the learning of "abnormal" or socially unacceptable patterns. Despite their ultimately negative consequences for the individual, these patterns still appear to have sufficient positive reinforcement (e.g. via their temporary alleviation of anxiety) to be maintained tenaciously.

We hypothesize that the practice of spirit possession permits the sanctioned expression of behaviors[4] which are otherwise socially unacceptable or unavailable. In a learning theory interpretation the sanctioned expression or release of otherwise unacceptable behavior is not in itself reinforcing; rather, the consequences of the behavior (for example, other people's reactions of praise or reproof) are the reinforcements and the determinants of whether or not the behavior will be repeated. We shall examine some of the behavioral patterns enacted during spirit possession and indicate what their positive and negative reinforcement consequences appear to be.[5] The methods used to infer these consequences were participant observation and intensive clinical interviews and testing with twenty of the most active participants. It is hoped that isolation of behavior patterns, in terms of the kinds of reinforcements which appear to be gained through them, will help to clarify a phenomenon which has heretofore been presented largely in an essentially global and undifferentiated manner.

Perhaps the most striking pattern of behavior during possession is that in which the possessed controls the activities of those around him. Both the degree and temporal duration of this control vary greatly between individuals and situations; a relatively limited number of individuals, pri-

[4] "Behavior," as used throughout this paper, includes not only explicit behaviors or overt acts, but also such "implicit" behaviors as are commonly subsumed under terms such as "wishes," "feelings," "thoughts."

[5] We shall not be concerned here with the "social" reinforcements of possession behavior, e.g., with the ways in which particular behaviors during possession may influence the individual's position in the group and his relationships to other group members.

marily cult leaders, exert the greatest and most consistent control. In the most extreme examples, the possessed is virtually in absolute control of those around him. His slightest wish is immediately carried out; the onlookers are utterly at his disposal and ready to advance, retreat, sing, or keep silent at his command. Oil, rum, implements such as axes, swords, food, and candles, are quickly brought in response to his signals. The attitude of the Shango followers when the power is exerting his control over them tends to be one of awe and respect, frequently mingled with fear. The Shango followers flock close to the power, attentive to every word, alert to any advice, warning, or recommendation that may issue. This kind of behavior on the part of the group, with its inferred gratification to the horse, is in striking contrast to the secular role of the horse (generally of the lowest social status). The domestic who thirty minutes earlier was submissive to the whims of her British mistress is, under possession, transformed into a god; the unemployed laborer is master of an audience of several hundred people. The transition is often an almost direct role reversal--from passive impotence to central importance, dominance, power, and recognition, which appear to be the major reinforcements obtained through this behavior pattern. However, these reinforcements are not available to all, for some who attempt to gain such stature under possession are met by ridicule and rejection.[6]

A much less frequently observed pattern is that in which the possessed may tear his clothing, beat himself, roll on the ground for prolonged periods, aim dangerous implements in his own direction, and so forth. This behavior seems to be directed at self-inflicted violence or harm, but self-injury is quite rare and was never observed. The overall impression gained from this behavior (an impression shared by many Shango followers) is that the individual is doing penance. The interpretation of cult members is that such activity is a reflection of the unworthiness of the horse, and that, due to infractions or evil deeds (primarily "uncleanliness"), the power is angry with the horse and punishing it. The reaction of onlookers to this behavior appears to be quiet noninterference, or acceptance with occasional intervention, e.g., efforts to pacify the power when behavior becomes extremely violent. Public expression or confession of guilt may also take place in this essentially nonpunitive setting. The reinforcement obtained by the possessed through this behavior may be the reduction of guilt and anxiety, both of which are interpreted here as socially learned drives. The individual who has learned to expect negative reinforcement, e.g. punishment for certain overt or contemplated behavior, obtains a measure of relief or drive reduction through punitive acts. Further, by taking the punishment into his own hands he may avert more severe expected

[6] This problem will be discussed in a paper now being prepared.

punishment from outside, unknown, and dreaded sources over which he has no control.

Close physical interaction between the possessed and his audience distinguishes another pattern. The possessed may crawl through the spread legs of other participants of either sex or squat on the prostrate form of another, massaging his chest, breasts, thighs, and shoulders, and bouncing up and down on the body. Particularly when female horses manifest male powers, the implement used (usually an axe, cutlass, or sword) is frequently flourished near the genitals of other participants, with both a menacing and sexual effect. The possessed may lift persons and let them ride on his back or shoulders, bouncing the rider. Or the possessed may kneel in front of a standing figure (most often the male leader) and rub his face on or around the groin. The variations in this pattern are numerous. Closely intermingled with this appear to be seemingly hostile and aggressive activities, as when extremely rough or threatening behavior is directed at the person whom the possessed is straddling and rubbing. For example, the possessed may push, crush, or lash persons with whom he has a much more restricted relationship in his normal state.

It is inferred that the reinforcements derived from such behavior are primarily the attainment of intimate, though often fleeting, interpersonal relationships which are desired by the horse but which are too prohibited socially to be permitted gratification in the nonpossessed state. The content (e.g., sexual, hostile) and the objects vary considerably but share the characteristics of being desired by the horse but unattainable in the normal state.

A striking pattern which is prohibited in the nonpossessed state involves the reversal of sex roles. Many females manifest male powers and, to a lesser degree, males manifest female powers. In such cases the female, under possession by a male power, is free to enact typically masculine behavior, and the male is free to enact typically feminine behavior. Individuals who have not learned clear sex roles, or who do not accept their roles, and whose goals partially involve those traditionally prescribed for members of the opposite sex, have a particularly appealing opportunity to assume temporarily the behavior usually considered appropriate only for the opposite sex. For example, the woman who resents a passive role can behave in a dominating, aggressive, belligerent manner; the man who finds the aggressive role difficult can behave in a passive, submissive manner.

The childish behavior which occurs in weré possession, found also in Brazil, has been discussed (Herskovits 1943) and considered as a period of relaxation in which to bridge the gulf between the ecstatic condition of possession and normalcy. An alternative, and not necessarily contradictory, interpretation is that childish, regressive behaviors--such as soiling, baby talk, and autoeroticism--are still pleasurable to the individual, both directly

and for their possible symbolic meanings. Within weré possession, behaviors which are still gratifying, but which have long since become unacceptable and which the individual has been forced to abandon, can again be enacted without inhibition.

Thus far we have been discussing the potentially reinforcing consequences of specific behavior patterns. Apart from these specific behavioral enactments, the practice of spirit possession in Trinidad appears to have two other major positively reinforcing general functions. First, it supplies an available, socially sanctioned (at least within the practicing group) framework for the interpretation and acceptance of otherwise threatening and disturbing phenomena, such as unusual ("abnormal") psychological or physical symptoms. For example, where hysterical (i.e., apparently nonorganic) symptoms develop, the afflicted person himself or those around him, while under possession, interpret these as the first "signs" of the special "gift." This not only prevents the deviation from becoming a source of social stigma but, on the contrary, makes it a valued behavior, regardless of the ultimate personal consequences. The belief system which can render behavior which would otherwise be considered a malignant symptom into one that is prized and reinforced is itself reinforced by the process.

Second, the practice of spirit possession is also rewarding since it permits reference of virtually all serious problems to the "powers" for solution. Thereby, the individual is to some degree freed of responsibility for controlling and directing his own life. This not only gives aid in difficult decisions but also alleviates anxiety about such choices. The horse assumes a relatively passive role; it is the powers who handle the problems confronting him. Except for rather flexible adherence to a few vaguely interpreted general rules for "clean living," the participant surrenders control for ordering his life and bearing the consequences. This passivity is implied by use of the word "horse" to describe the possessed, who is said to be "ridden" by the power, directed by the power, and a tool or plastic medium controlled by forces from which he disassociates himself. The individual is thought of and considers himself a horse, not only prior to or during possession, but at other times as well. His identity, his self-concept, and his social roles are influenced to a considerable degree by the kind of horse he is, by the powers who most habitually possess him, and by his behavior at such times.

This personal passivity must not be over-emphasized. Although the individual does remove most major decisions from his own conscious and immediate jurisdiction, they are not surrendered to an abstract or remote power. The power to which they are transferred is directly and personally experienced within the participant's own body and, although not credited as such by the possessed, is an extension, as it were, of the individual's conscious behavior. That is, the power is an aspect of the individual himself, presumably without his awareness, which emerges during possession. Thus,

the solutions reached by the power are not actually foreign or external to the individual but rather reflections of his own personality, under disguise. Within this condition, the kinds of behaviors which have been indicated can be enacted in both symbolic and overt form during possession, supplying the individual with gratifications and yet freeing him from personal responsibility for any negative consequences.

We have been emphasizing only the positively reinforcing aspects of possession. However, it must be recognized that, for some individuals, possession is also associated with negative values or is negatively reinforcing. This is reflected in the considerable number of participants who make seemingly intense and elaborate efforts to avoid possession. For the most part, this avoidance pattern is not complete since the individual continues to return not only to the ceremonies but also to the center of activities within which the chances for becoming possessed are greatest. In these instances one may infer an approach-avoidance type of conflict in relation to possession. Such conflict is seen in the individuals who hover and sway at the edge of the palais, attracted to the drums, "overshadowed," and at the same time slapping themselves or throwing water on their faces in the attempt to avoid possession. In other cases, the anticipated negative consequences of possession are so strong that the individual avoids the ceremonies altogether or, more commonly, joins that large proportion of people who constitute an interested but relatively uninvolved audience, carefully maintaining their distance, and intent on the feasting and entertainment aspects of ceremonies rather than on personal involvement with the drumming and dancing.

In Trinidad, some of the major negative reinforcements of possession include the following: On a cultural level, and perhaps of major import, is the perceived conflict between this kind of "African" activity and the increasingly sought values and activities of the more middle class segments of the population, particularly of the European groups. As acculturation continues and upward mobility develops, this conflict may well become intensified. Perhaps associated with this, at least in part, is the aversion to the complete abandon—rolling on the ground, dirtying oneself, and the like—displayed in possession. This, and the fear of loss of self control, may in turn be related to fears and conflicts, with varying degrees of awareness, about expressing potentially undesirable behaviors publicly or even partially admitting them to oneself. Further detrimental to possession is the widespread belief that aspects of behavior under possession reflect on the quality and worth of the horse; for example, a violent possession in which the horse may be hurt indicates that he has not been living a good life. It would not be surprising, then, for certain self-doubting individuals to be particularly wary about possession. In addition, some individuals expressed fear both of self injury and of injury by, or retribution from the powers while under possession. All of these factors may be involved

in the embarrassment, fear, and avoidance expressed by numerous Shango participants both overtly and in the form of ambivalent and conflicting attitudes in relation to possession.

It seems apparent that the specifics of each aspect of possession discussed may potentially apply only to possession behavior in Trinidad's Shango group. Particular physical manifestations and psychological goals or reinforcements obviously vary with the culture in which they are operative.

Although our approach has been to infer reinforcements on a rational and primarily external basis, it is important to keep in mind that for the participants, "possession by the god [is] the supreme religious experience" (Herskovits 1941:215). For those actively involved, the experience of possession is the supreme life experience as well. Daily behavior is directly and indirectly influenced by the powers; they are always there, ready to be called on for advice and guidance in every stress situation experienced by the horse. Dreams and visions play a major role within the culture, and their content is generally interpreted as containing messages from the powers. Before major trips or before undertaking some special task, a dream containing advice from the powers is frequently experienced; such advice is rigidly adhered to, and serves to orient and guide behavior. Meaning and direction are given to the life of the participating individual: as one leader put it, "being a Shango woman is my life."

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Data on the Nature of the Hypnotist



Merton M. Gill and Margaret Brenman

We come now to the other major participant in this process: the hypnotist himself. Our information about this other member of the "group of two" (2) is derived from several sources: the introspection of a number of hypnotists supervised by us in a resident-training program; material gathered from psychoanalysts who have had hypnotists in treatment, or who themselves work with hypnosis; and finally, responses by a small group of experienced workers in this field to a written inquiry from us.

That there has been almost no significant discussion of the psychology of the hypnotist is in part a function of the general reluctance in all of us to consider or discuss the infantile, or even the unconscious, motives in our professional work; in addition to this, the assumption that hypnosis is something that happens to the subject, alone, has made such considerations as the motivations of the hypnotist appear to be irrelevant to a theory of hypnosis. Yet another reason for this paucity of discussion issues from the belief held by several leading psychoanalyst-hypnotists that there are no specific driving motives common to all practicing hypnotists, and that, to quote one respondent, the individual meaning of inducing hypnosis is "contingent on specific personality needs and conflicts . . . and that the individual responds to the use of hypnosis the way he does to other things in life." He concludes ". . . to tell you about my own unconscious attitudes toward hypnosis would be merely to tell you my own unconscious attitudes toward anything else." While we can agree that the hypnotist certainly does not fall easily into a single, stereotyped personality pattern,

Selection from M. M. Gill and M. Brenman. *Hypnosis and related states*. New York: International Universities, 1959. Pp. 91–98.
This excerpt is an integral part of the authors' discussion of the interrelationship between subject and hypnotist. The reader is referred to the original discussion to understand the wider context of the material.

any more than does the subject, it is nonetheless our impression that there are certain important characteristics shared by those who practice hypnosis, and moreover by those who try it and quickly abandon it, both for therapeutic and for research purposes.

There can be little question that the process of inducing hypnosis touches off important and intense feeling in the hypnotist as well as in the subject. Curiously enough, it has been our observation that whereas the first attempt to induce hypnosis is usually attended by acute anxiety in the operator, this is an exceptional happening in the potential subject who is being tried for the first time. We have speculated that the reason for this difference in experienced anxiety in a situation where we presume both members of the partnership are, among other things, acting out infantile fantasies, lies in the fact that, at least overtly, the "goings-on" are the responsibility of the hypnotist and not of the subject.

Further evidence that important motives are brought into play in the induction procedure is the fact that success and failure in hypnotizing the subject are regularly attended by an exhilaration or a disappointment in the operator greatly disproportionate to what Schilder called "the business at hand" (4). Both the initial anxiety and the extreme reactions to success and failure have been regularly reported by the hypnotists who cooperated in this study; these two reactions are, however, no more than indices to important motivations in the hypnotist, some of which we shall attempt to describe.

Pardell (3), in one of the few significant discussions of this problem, suggests that ". . . the hypnotist is a person who is willing, and perhaps desires, to accept the position of the controlling and omnipotent parent-figure and who at the same time is willing, and perhaps desires, to allow the patient to satisfy the regressive longing that is characteristic in hypnosis" (p. 486). This hypothesis is good as far as it goes, and is unquestionably confirmed by our data in so far as most of our responding hypnotists recognize in themselves an important need, however well or poorly disguised, to control other human beings. This need may express itself variously, ranging from an overt energetic tyranny (in both hypnotic and nonhypnotic situations) to an all-giving position which seeks to control by engendering dependence.

When, however, such strivings are for one reason or another unacceptable to the aspiring hypnotist, his anxiety becomes intolerable and he shortly gives up the effort. One of our respondents, a particularly honest and self-searching psychoanalyst, says:

> I gave up hypnosis as a regular procedure very early in my career because I am aware of the fact that for me personally, it was an unhygienic situation. Without elaboration of details, I may now say that my decision to hypnotize a man was motivated ultimately, with almost immediate awareness, by some almost sadistic impulse to dominate him and with the female,

> the comparable situation manifested itself in the form of an erotic impulse. In my emotional economy therefore I have to look upon hypnosis as an acting-out with implications ramifying beyond even the aware phenomena which I have stated.

It is of incidental interest that Freud's own reminiscences suggest that he abandoned hypnosis in part because the procedure made him uncomfortable. His feeling that ". . . such treatment savored of injustice and violence" (1, p. 66) came after he watched a particularly tyrannical session conducted by Bernheim in 1899.

Another of our psychiatrist informants, who stresses as one of the infantile components of the wish to hypnotize the need for a magical omnipotence, adds rather wryly: ". . . but we must not forget that such motives undoubtedly play an important role in the initial decision to become a physician at all, and certainly in the specialty choice of psychiatry. The only trouble is that with the use of hypnosis this all becomes so naked." It is precisely this "nakedness"—made doubly so in recent years by the deliberate introspectiveness of analytically trained workers that has had certain important influences on the technique of induction itself. Whereas the classical hypnotist like Bernheim (or the stage hypnotist) apparently felt no embarrassment at such overt tyranny as has been described, the average young psychiatrist or psychologist today cannot allow himself such liberties, and usually tries to reassure his patient that the whole procedure is extremely "rational," if not cut and dried: in this way he tries to outmaneuver his own unconscious, and to make palatable to himself that part of his motivation which is essentially infantile and which he could probably not tolerate in its nakedness. With a few notable exceptions, the obviously theatrical "Svengali" approach has vanished from the professional scene; this is in keeping with the temper of the times which demands "rational magic" and regards as amusing a Svengali who is trying to be frightening.

We indicated earlier that it is far from complete to sum up the unconscious motivation of the hypnotist as "the wish to be an omnipotent parent-figure who allows the patient to satisfy regressive longings." We would like to add to this the hypnotist's more deeply hidden wish to satisfy such regressive longings in *himself;* this he can do via an identification with his hypnotic subject. It is difficult to document this crucial aspect of the structure of the hypnotist, because it cannot be both adequately disguised and at the same time persuasively discernible. We are sufficiently convinced, however, of the importance of the hypnotist's unconscious regressive yearnings to have built our theory of "the psychology of the hypnotic relationship" in part on this assumption.

The question now inevitably arises: are there not numerous professional undertakings characterized by the wish to be magically omnipotent and yet (by identification) regressively satisfied? Indeed there are. This means

then that far from having arrived at any pattern of motives which are *specific* for the structure of the hypnotist, we have outlined only a scaffolding. We have some important hints from our data as to what some of the other ingredients are, but only hints.

For example, it is our impression that just as our good hypnotic subjects have a histrionic "streak" in their personalities, so do our good hypnotists. In recent years this ingredient has all but disappeared in the observable induction technique of most professional workers, with a few exceptions, for reasons we have already indicated. Nonetheless, the frank discussions offered by our informants strongly suggest a vivid interest in the high drama of hypnosis (". . . it is always a good show") and a sense of participating *with* the subject in a kind of game or play. It is no accident, we believe, that the reports describing the experience of hypnotizing so often include comparisons to theatrical situations; for instance:

> . . . regarding the use of the word "seductive" to describe the experience of hypnosis: I think of it only in terms of the situation and not that it is the subject who is being seductive. I tend to think of seduction or of my being seduced in terms of artful seduction, in contrast with attack or open offer; *I think of it in terms of someone so setting a stage that I move about as though I were the hero of the piece while really, as I might later discover, I was only a straight man for the real star.*

There are many interesting aspects to this statement. Not only does it contain the sense of a somewhat contrived or staged situation; it includes also an overtone of the profound (though usually hidden) passivity of the hypnotist who while "running the show" may actually feel himself to be "only a straight man." Indeed, the above statement taken by itself might easily be thought to be a notation from the subject, not the hypnotist. Although there is certainly a tremendous range of histrionic quality in our hypnotist group– with the flamboyant "ham" at one end, whose routine technique is close to that of the average stage hypnotist, and the restrained, modest, matter-of-fact "scientist" at the other– we have considerable material which suggests that, in one form or another, the hypnotist does enjoy the role-playing which the hypnotic relationship necessarily involves.

Yet another factor which seems important is the particular attachment to, and in the gifted hypnotists, the special talent for, talking; they seem to have what has been properly called "a gift for gab." Many of our good hypnotists savor speech quite consciously, particularly their own, are highly articulate individuals in nonhypnotic situations, and on the whole seem to do a good deal of talking whether or not they are hypnotizing anybody. We have speculated whether this form of "orality" in our hypnotist group is the reverse side of the orality we have mentioned in our good hypnotic subjects.

Finally, several of our informants have sharpened for us an issue which has seemed to us extremely important in the choice of psychiatry as a

profession generally, but which becomes particularly clear in the hypnotic relationship: this is the paradoxical need for simultaneous intimacy and distance. One man, a psychoanalyst, writes:

> I always felt in doing hypnosis that I was keeping the patient at arm's length. Despite many qualities of psychological closeness it felt nevertheless to me like an arbitrary interdiction . . . or a qualitative block in communication. It is perfectly true that it allows me to pull some stops which I would never do without it, but this still has a quality of play-acting. It sometimes is enjoyable as such and one might say it was a sincere performance, but nevertheless a performance. . .

Another informant, also an analyst, having expressed much the same sentiment, adds however:

> . . . yet is this really so different from the curious situation where I sit behind my analysand who is supine and thus symbolically "helpless," who has to tell me his most intimate thoughts and feelings and to whom *in this controlled and circumscribed situation* [italics ours] I react with intimate feeling and comment—and to whom a few seconds later I behave in a somewhat cool and professional manner as he leaves my office?[1]

From the last comment, taken together with other material which we do not have permission to quote, it has seemed to us that the need to establish a close and even "merging" relationship with another human being is kept in strict and thus "safe" bounds for the psychotherapist by the professional rules of the practice of psychotherapy, whether or not he practices hypnosis; but that in those who choose to specialize in hypnosis, this paradoxical necessity to establish closeness, and yet retain firm control over the maintenance of necessary psychological distance, is of particular importance.

These few hints leave much indeed to be learned of the structure of the hypnotist; yet they are sufficient, added to the extensive material from our clinical cases, to allow at least for a general outline of the unconscious interplay between hypnotist and subject.

6

Hypnotherapeutic Techniques in a Central Asian Community



Ja'Far Hallaji

During a sojourn in Afghanistan in the spring of 1961, I had the opportunity of observing hypnosis among the people of an ancient culture. I feel that the following notes on my experience may contribute to a knowledge of the nature of hypnotherapy in places which have been relatively unaffected by modern developments, and hence shed some light on the historical use of this technique.

The community which I observed is a semi-monastic one, known as Naqshbandi Sufis. The culture is similar to that of the Yogis of India, in that the training of mind and body is stressed, while supernatural elements are rigidly excluded in practical work. Sufism has, however, a respectable literature of transcendental character, and most of the mystical poets of the Persian, Turkish and Urdu classical periods were Sufi practitioners. Training of the Sufi practitioner is done in secret, given only to selected disciples, and it claims to be the only real "occult training." Its purpose is the production of a "perfect man" complete in mind and body. Disciples have to prove their fitness by undergoing tests and training. Many Sufis are known as "*Hakim*" (Doctor), meaning that they have passed through a 16-year course in their art. A description of the activities of the Sufi doctor or practitioner will be the main purpose of this paper.

In the community which I observed a "clinic" is held each Thursday night prior to the group devotions and exercises of the entire body. This clinic is composed of 60 devoted practitioners of the Sufi methods. The precise method of the training of practitioners for this clinic was not avail-

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able. The Sufis are opposed to any investigation of their art because official medical science has not accepted their activities. They were even reluctant to let me observe their methods in the clinic because they feared that I might be associated with an official inquiry into Sufi methods. However, after these difficulties were overcome, the "*Pir Hakim*" (Elder Physician), a man of about 60 years, accompanied by his six senior practitioners, took me to their place of operations.

The clinic was a large, whitewashed building which contained one large room and several smaller ones; the rooms were dimly lighted by oil lamps which hung by chains from the roof. In the large room string-bedsteads were arranged against the walls, each covered by a cotton quilt. During the particular night on which I was observing, there were 18 male patients, ranging in age from approximately 18 to 50. Their ailments included insomnia, headaches, indigestion, lack of appetite, impotence, undefined fears, and backache. The patients consisted of Caucasian and Semitic-type nomads, farmers and other local residents; most of them appeared to be uneducated.

Each applicant was first seen by the chief and his assistants in one of the small rooms and then assigned a bed in the clinic. After the patient had been assigned a bed, he lay on his back, with his eyes fixed upon one of a number of octagonal moldings. Set in the ceiling, these moldings were embellished with a nine-pointed diagram. The chief practitioner and his assistants now visited each bed in turn. While the rest of the group maintained a chant of the syllables, "Ya HOO, Ya HUKK!", the chief passed his hands, held together with palms downward, horizontally over the patient. His hands were held about six inches over the patient's body and passed with a rhythmic movement from the eyes to the toes. The technique thus resembled that of the Mesmerists. An integral part of the proceedings was that the chief practitioner rhythmically blew upon the patient at a rate of about two breaths a second. It is this aspect of the procedure which is responsible for its name, "*Chuff*" (Breathing). The hypnogenic effect of this technique is probably facilitated by the relaxation of the body, the warmth of the room, the patient's concentration upon the diagram, and the occasional interruption of the light when the palms are passed across the face.

The subjects appeared to enter a hypnotic state in about six minutes. The induction, however, continued for an average of 12 minutes with younger patients; in the case of patients over about 40, up to 20 minutes was usual. Not all of the patients closed their eyes. Rather, a sharp intake of breath and cessation of minor bodily movement generally signalled the onset of hypnosis for these patients. However, no attempt was made to test for the presence of or depth of hypnosis.

After the long period needed to deal thus with each of the 18 patients, the party of practitioners sat down on a bench in the middle of the

room while more lights were brought. Tea was now served to the operators, and for half an hour, conversation in low tones with me was permitted. I was assured that the patients were now unconscious, although no verbal suggestions of sleep had been given. The practitioners also informed me that the patients had not known what the nature of the treatment would be before coming to the clinic because all patients who had ever been treated here were cautioned when first interviewed that they should not repeat to anyone, on pain of a recurrence of their malady, the form which the therapy took.

At the end of this half-hour period, the practitioners again visited each case in turn. A small gong was beaten once near the patient's head. If he did not stir, the chief, reading the symptoms from a piece of paper, informed him that the curative powers of "*Baraka*" (Impalpable Force) were entering him, would continue to work in him, were curing him in every possible way, and would complete the cure before he woke up. This was repeated five times. During this phase of the procedure, the chief made two occult references. The first was that the clinic was "*Haykal-i-Khaab*" (The Temple of Sleep), and the other was that the healing took place by virtue of curative power transmitted through the sanctity of the founder of the Order of Sufis, Sheikh Bahauddin Nakshbund.[1]

If, however, the patient did stir or move when the gong sounded, he was told that at the end of the proceedings he should rouse himself and return the following Thursday evening for further treatment; he was instructed to lie still meanwhile until the proceedings were finished. Of the total, two patients were evidently not in hypnosis.

All were eventually awakened by being shaken by the shoulder and by being told to arouse themselves. They then kissed the hand of the chief and were sent to another building where they were fed and allowed to stay until morning. The following day the patients were again examined for symptoms, and 15 claimed that they were cured. The 16th, the case of impotence, withheld judgment as to his state of health until his return to his village.

According to an informant, the two unsuccessful cases were subsequently hypnotized. It is stated that their maladies—insomnia and migraine—were at that time banished.

The Sufi method of treatment seems to differ from most other religious healing methods in certain respects. Despite the fact that the practitioners are viewed as holy men, I observed no Sufi propaganda being offered to the patients. The practitioners themselves maintain that their method of cure differs from techniques of faith healing such as the orthodox Islamic

[1] It may be mentioned here (a) that the idea of the Sleep Temple could have been transmitted through the Greek culture which once had a stronghold in Afghanistan, and (b) that Bahauddin is a historical figure who is widely reputed to have had curative powers.

in the sense that the patients are *not* expected to have faith that they will be cured by the treatment. Further, although one might expect that the practitioners would receive some kind of payment for their services, they accepted no gifts beyond the amount of food which could be held in the palm of one hand.[2]

According to the chief practitioner, cases of cancer, tuberculosis and poisoning had been successfully treated by Sufi methods, though it was sometimes necessary to hypnotize a patient as many as 300 times before effecting a cure. It was also claimed that numerous referrals to the Sufi method had been cases which defied treatment by physicians trained in the West.

As far as could be ascertained, there was no knowledge of hypnosis as used in the West and no member of the community had any knowledge of any foreign language other than Persian. The books in their library were exclusively classical ones or poetry. The chief practitioner claimed that the Sufi method of treatment originated in the 12th century but had been used for many centuries prior to that by certain Sufi "masters." This hypnotic technique of treatment is claimed to have been brought to Afghanistan by a family of descendants of the prophet Mohammed.[3] This claim may be somewhat substantiated by the historical incident in 620 A.D., in which Mohammed placed his son-in-law and companion, Ali (subsequently the Fourth Caliph), into a trance and was able to withdraw without pain a fragment of a lance which was embedded in his thigh.

The mandate to teach the technique is still held by the Hashemite family (of which Mohammed was a member), and the present chiefs who maintain this mandate are the three senior male members of the family: the Princes Ikbal Ali Shah, Idries Shah, and Omar Ali Shah. Their hypnotic knowledge and power thus can be seen as deriving from three sources: that they are Sufi practitioners which gives them the curative power of Bahauddin, that they are tribal chiefs, and that they are Sayeds, descendants of Mohammed.

[2] The community's economy centers around agriculture, sheep raising, and some cropping of fruit and nuts.

[3] The tribal chiefs of this area of Afghanistan are descendants of this family, and the right to the title of tribal chief is hereditary.

7

Sequelae to Hypnotic Induction with Special Reference to Earlier Chemical Anesthesia[1]



Josephine R. Hilgard, Ernest R. Hilgard, and Martha Newman

The effects of hypnotic induction include both intended and unintended behavior, and it is the unintended, unexpected consequences of hypnosis that we are considering. The unpredicted aftereffects of hypnosis have both scientific and practical interest, the scientific interest lying in the light that is thrown upon the meaning to the subject of the hypnotic interaction, the practical interest in the precautions that are needed in the use of hypnosis in the laboratory and in psychotherapy in order to protect the participant from disturbing consequences of such participation. Some transient symptoms following experiments in hypnosis with a normal non-patient population of university students (10) led us to examine the sequelae reported within a sample of 220 non-patient university *Ss* (114 males and 106 females), over two years (1958–1960).

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[1] Laboratory of Human Development and Departments of Psychiatry and Psychology, Stanford University, Stanford, California. The laboratory of Human Development was established under a grant from the Ford Foundation. The program in hypnotic research has been continued with the aid of the Robert C. Wheeler Foundation and the National Institute of Mental Health (Grant No. M-3859). Appreciation is expressed to our colleagues for the use of data collected by a number of staff members and assistants, in addition to ourselves.

Earlier Reports

Before turning to our own data we wish to review some of the earlier findings concerning the unintended consequences of hypnosis Possible dangers in the use of hypnosis, particularly when practiced by amateurs and by stage hypnotists, have been noted for a long time. For example, Schultz (27), on the basis of a questionnaire study, uncovered 100 cases of health-damaging consequences of hypnosis, including such aftereffects as headaches, tremor, and neurotic and psychotic symptoms.

Most of the reports more recently published have addressed themselves to the sequelae of hypnotic therapy. Brenman and Gill (1), reviewing pertinent studies, including that of Schultz, believed the dangers of hypnotherapy to have been exaggerated. They concluded: "It would appear that in general the actual dangers of employing hypnosis are slight when the fundamentals of responsible interpersonal relationships are observed by the hypnotherapist; but there is a contraindication when the patient is on the verge of a psychosis" (1, p. 90).

Their later experience indicated marked success in symptom alleviation through direct suggestion: "Our experience with this technique since our last published summing up of its applications was largely restricted to soldiers complaining of circumscribed symptoms of recent origin . . . Thus our records contain many examples of short periods of treatment of men in a veterans hospital (10 to 15 hours) where by direct suggestion various psychosomatic symptoms have disappeared" (7, p. 340).

They mention no undesirable sequelae. Unfortunately, no systematic studies or case reports on this material are available.

Those who have emphasized some disastrous consequences of hypnotherapy (*e.g.*, 21-24) have usually cited cases of severely ill patients, often with symptoms of varied kinds and of long duration, commonly (but by no means always) treated by incompetent therapists. The large number of successful cases without reported sequelae, and a few striking cases of damaging consequences, suggest that the present impressionistic summaries need to be supplemented by more precise definition of the total group of patients studied and the nature of the aftereffects when such occur.

Consequences in the period after leaving hypnosis are particularly relevant to the present study. Most of the cases reported are based upon the removal of symptoms through suggestions given under hypnosis that the symptoms will disappear; thus the loss of the symptom is essentially the carrying out of a post-hypnotic suggestion. Danger lies in the substitution of some other symptom for the one removed, a symptom that the patient can handle less well than the original. Appropriate statistics are difficult to locate. Extreme cases come to attention and are reported, but there is

no way of knowing how representative they are. A handful of such cases can be quite impressive; even one case is enough to warn that care must be exercised in psychotherapy, hypnotic or otherwise. Some cases reported over the last few years are listed in Table 1; details about these cases are insufficient to show more than that some patients treated for their symptoms by hypnosis developed much more severe symptoms at some later time, whatever the ultimate course of their illnesses. Most of the

TABLE 1

REPORTED ADVERSE SEQUELAE TO SYMPTOM REMOVAL THROUGH HYPNOSIS

Subject	*Original Symptom Relieved*	*Most Severe Later Symptom**	*Reported by*
38-yr. Female	Neurodermatitis	Acute schizophrenia	Joseph *et al.* (13)
49-yr. Female	Choreiform spasms and jerking movements	Many substituted symptoms, including nausea and vomiting	Seitz (29)
39-yr. Female	Bulimia (weight, 325 lbs.)	Depressed and suicidal when most symptom-free	Seitz (28)
41-yr. Male	Parkinsonian tremor following attempt to strangle boss	Murderous impulses when most symptom-free	Seitz (28)
Male	Phantom-limb pain	Schizo-affective psychosis	Rosen (21, 23)
Male	Severe leg pain	Depressive reaction	Rosen (22)
Male	Abdominal pain	Judged to be suicidal risk	Rosen (22)
41-yr. Male	Fear of flying	Personality decompensation, hospitalized	Meldman (17)
30 + yr. Female	Compulsive smoking	Overeating replaced by alcoholism	Rosen (21)
Male	Back pain following laminectomy	Committed suicide a week after symptom loss	Rosen (21)
Female	Generalized pruritus	Sexual desire for and homicidal rage against lover who deserted her	Rosen (21)
Adolescent male	Spasmodic torticollis	Overt homosexuality	Rosen (21); Rosen and Bartemeier (24)
Female	Obese, hypnotized for weight loss and delivery	Paranoid about physician who delivered her under uneventful hypnosis	Rosen and Bartemeier (24)
Male	Numbness in one arm	Schizophrenic psychosis	Rosen and Bartemeier (24)
45-yr. Female	Continuing back symptoms after injury	Paranoid psychosis	Teitel (30)

* The most severe symptom later reported is not necessarily the final symptom; occasionally there was complete recovery, and in other cases a return to the original symptom relieved the more serious pathology; in still other cases, the final outcome is unreported.

cases had a fairly long history of illness, and the complaint that brought them to hypnosis was but one among many; this complaint was usually a form of psychosomatic or related symptom, and the most commonly reported severe symptoms that developed later were those of psychotic states. The presumption is that many of these patients would have revealed psychotic tendencies had careful histories been taken; symptom removal in patients on the verge of psychosis can deprive such patients of a major area of ego defense, and is ill-advised.

It may be noted that similar results are reported for non-hypnotic therapies directed toward symptom removal. Thus Penman (20) showed that new and occasionally severe symptoms can result when *tic douloureux* is treated by alcoholic injections in the ganglia to relieve the pain; Saul and Bernstein (25) reported that chronic weeping was converted to urticaria by threatened hospital commitment, without hypnosis; Menninger (18) described a patient in whom a successful gastrectomy for peptic ulcer was followed by suicide because the painful symptom could no longer mask a depressive tendency.

In order not to combine various aftereffects that have different origins and different meanings, we need to differentiate sequelae that are related to different phases of the hypnotic process. Unexpected behavior may occur in the induction phase, in the established state (either spontaneously or following some specific kind of suggestion), or after leaving hypnosis (spontaneously, or in relation to post-hypnotic suggestions). To anticipate some of our material at this point, we found that there may be some effects after the hypnotic session is over among those *S*s who have not entered at all deeply into the trance state. The nature of the hypnotic interaction is such that significant conflicts can be manifested at any phase, with varied meanings depending upon *S*'s history, personality dynamics, and expectations about hypnosis. While we are concerned primarily with the sequelae occurring after *S* leaves the hypnotic session, we shall illustrate some of the other effects to keep our results in context.

Some kinds of emotional outburst, and occasionally bizarre physical posturing, are reported as accompanying the initial attempted induction, particularly on the part of patients coming for treatment (7, 26). These effects, common among neurotic patients, are very rare in our non-patient student population; we have seen only two instances of crying (male *S*s) within the samples studied thus far, and have had none involving fainting, exaggerated breathing or tachycardia, although we have seen these reactions in other cases under other circumstances.

Various unexpected or unsuggested effects are reported within the established state apart from any specific suggestions (5). Changes in body awareness, in modes of thought, release of emotion, spontaneous motor expression, have all been reported, sometimes characterized as alterations in the state of the ego (2). Occasionally *S* goes into a sleeplike state from which it is difficult to rouse him (12).

Specific suggestions within hypnosis may result in the appearance of side-effects. Turner (31) reported the case of a 40-year-old secretary who participated in an experiment on hypothermia under hypnosis. When the suggestion was made that her body was becoming cold she had a heart pain and reacted violently to it, clutching at her heart. This appeared to be an anginal attack. She recalled how, as a child, she had been caught in a blizzard and had nearly frozen to death. The hypnotic suggestion of lower body temperature had reintegrated the feelings of this earlier experience.

A post-hypnotic suggestion may also result in symptoms that develop when the post-hypnotic suggestion becomes activated. One such case, described as a miniature psychotic storm, was reported by Brickner and Kubie (3) as the accompaniment of a simple post-hypnotic suggestion that produced a superego conflict.

In summary, various things happen within induction, in the established hypnotic state, and after hypnosis, some of which can and some of which cannot be accounted for directly on the basis of the suggestions the hypnotist gave the subject or patient. When therapy is involved, the dynamics of the therapy are superimposed on the dynamics of the hypnosis, and there is no way short of further investigations to determine what to assign to hypnosis and what to assign to the therapeutic intervention. Careful studies are needed in which entire samples of subjects or patients are studied with the necessary controls to determine and to understand the effects that are attributable to hypnosis itself.

Sequelae within a Non-Patient Sample of Students

The student sample studied consisted of a run-of-the-mill selection from students enrolled in introductory psychology at Stanford University. They served in the hypnotic experiments as part of the course requirement that called for participation in experimentation for a given number of hours; while the *S*s thus "volunteered," they did so under a kind of social pressure that produced a sample quite different from that produced by those who seek out hypnotic experiences for their novelty, or who come for hypnotherapy.[2]

Our present study departs from the hypnotherapy group of cases in two major ways. First, the experiments did not involve therapy. What

[2] We have also a true "volunteer" sample from the student body, replying to an invitation to hypnosis that appeared in the student newspaper. This sample differed strikingly from that enlisted under the arrangements of laboratory participation for course credit; the difference between the laboratory sample and those who come for hypnotherapy is an inference from the experience of others, and is not based upon a sample in our laboratory.

belongs to hypnosis is therefore separated from what belongs to treatment for symptoms. Second, enduring posthypnotic suggestions were not made to *S*, as is usually the case in symptom removal. When sequelae do occur, therefore, they are not appearing in combination with directly suggested post-hypnotic phenomena.

All *S*s had follow-up interviews within a day or two of the hypnotic induction; in addition, we invited all *S*s to report back if there were aftereffects that they noticed later. When sequelae were reported, *S*s were seen again in brief psychotherapy (usually non-hypnotic). Examples of comments by those whom we have classed as having disturbing sequelae include: "I was 'in a fog' for one hour." "Things were hazy and vague for four hours." Another *S* continued to be drowsy, felt ill the night after the first induction, and returned the next day in a state of acute anxiety over continuing the experiments.[3]

The cases who reported any aftereffects attributed to the hypnotic induction or the hypnotic experience are summarized in Table 2. The 17 cases located among the 220 represent 7.7 per cent of the total; of these, only five (2.3 per cent of the total) had sequelae that were intense for a few hours, at most for several weeks; none persisted. No reaction was of psychotic intensity. The results in this student population support the view that, while a routine experience of hypnosis is generally harmless, the experimenter (or therapist) should be alert for possible aftereffects. It should be noted again that our experiments did *not* involve treatment (hence no symptom removal), and no post-hypnotic suggestions were given that were not removed before *S* left the hypnotic session. Thus, precautions were taken against sequelae, and yet some occurred.

Table 2 yields several items of information beyond the frequency of sequelae. For one thing, the relationship of the sequelae to depth of hypnosis achieved is very slight. While three of five of the more profound reactions were among more highly susceptive *S*s, two of these reactions were among only slightly susceptible ones, as measured by scores on the Stanford Hypnotic Susceptibility Scale.[4] Headaches were reported more often and dreams were reported equally often by the less susceptible *S*s. For this reason we have attributed such sequelae to the interaction of induction, rather than to the experience of the established hypnotic state, although the distinction cannot be kept sharp, especially for the more susceptible *S*s. Finally, we have included a column showing the tendency for a high proportion of those reporting sequelae to hypnosis induction to have had an unusual

[3] We wish to express our gratitude to those students whose willingness to participate with us in this quest for the causes of their varying reactions to hypnosis and whose thoughtfulness in the course of that search made this study possible

[4] The value of using a calibrated scale of hypnotic susceptibility in studies of this kind is evident. Later cases confirm the findings here—that some very slightly susceptible subjects have appreciable aftereffects. The scale, with normative data, is given in Weitzenhoffer and Hilgard (32).

reaction to chemical anesthesia associated with surgery as a child By an unusual reaction is meant struggling the report of requiring an excessive amount of anesthetic, extremely disturbing headaches and nausea after coming out of the anesthetic Because this finding lends itself to statistical study, we shall present it first before turning to some of the case material

TABLE 2

SEQUELAE TO HYPNOTIC INDUCTION AMONG 220 UNIVERSITY STUDENTS

Cases in Descending Order of Susceptibility to Hypnosis	*(Possible 24) Two day Hypnotic Score*	*Disturbance Intense for Several Hours or Long Continued*	*Transient Headache after Session*	*Dream Attributed to Experience**	*History of Unusual Reaction to Chemical Anesthesia as a Child*
More highly susceptible					
Case A	24			X	X
Case B	23	X			X
Case C	23	X			X
Case D	19		X	X	
Case E	18	X			Never anesthetized
Case F	17		X		X
Case G	16			X	
Less susceptible					
Case H	14			X	X
Case I	14			X	X
Case J	11		X		Unknown
Case K	11		X		
Case L	10			X	
Case M	10			X	X
Case N	10	X			X
Case O	6	X	X		X
Case P	5		X		
Case Q	3		X		X
Total cases	17	5	7	7	10 (X), 5 (−), 2 other
Per cent of sample (N = 220)	7.7	2.3	3.2	3.2	

* No suggestions pertaining to dreams occurred in the induction

Information on childhood experience with chemical anesthesia was available for 125 subjects The reaction was scored on a five-point scale, and only those scored at the top of the scale were considered to have had a discordant reaction to the anesthetic This group turned out to include 26 of the 125 subjects The relationship of sequelae to hypnosis is shown in Table 3 Of the 26 cases reporting extreme reactions to chemical anesthesia as a child, ten (38 per cent) reported some sequelae to hypnotic induction; of the 99 cases reporting more usual reactions to anesthesia as a child,

five (five per cent) reported sequelae to hypnotic induction. Or, stated the other way around, ten of 15, or two-thirds of those with hypnotic sequelae for whom the information on anesthesia was available, had had

TABLE 3

SEQUELAE TO HYPNOTIC INDUCTION AS RELATED TO CHILDHOOD EXPERIENCE WITH CHEMICAL ANESTHESIA

	Sequelae to Hypnosis		
Discordant Reaction to Chemical Anesthesia	*None*	*Some*	*Total Cases*
High	16	10	26
Low or None	94	5	99
	110	15	125*

* Excluding cases never anesthetized and those for whom information was lacking.
$\chi = 30.4$, $p < .001$

unusual reactions to anesthesia as children, while with those who reported no sequelae to hypnosis, only one in seven had had unusual reactions to anesthesia as a child. This relationship, which is statistically significant ($p = .001$), appears to deserve further study.

Case Material

A statistical finding such as the nonchance relationship between struggling under ether and sequelae to hypnosis, alerts the investigator to search for the circumstances that bridge these events. The process is, of course, a cyclic one, for it was case material in the first place that led to the statistical analysis. In the end, the situation will be explained if the findings permit convincing predictions about those most likely to show sequelae. All students reporting any symptomatology, however minor, were seen by one of us (JRH), with interviews lasting from a single session to five sessions. Therapeutic work was directed toward understanding the reaction to hypnosis in the larger context of the student's personality which made such a reaction possible. While the prevalence of disturbances of any magnitude was slight, we believe it incumbent upon those experimenting with hypnosis to have available psychotherapeutic resources as a protection both to *S* and to the scientific enterprise. We shall now present six cases that indicate more clearly than does a statistical summary just what is going on. Three of these illustrate the direct relationship established between hypnosis and chemical anesthesia; the others show a variety of symptoms with a variety of antecedents. Because some of the *S*s are still in college,

they are not described in detail in order to avoid identification. We have tried to serve the cause of scientific inquiry by giving salient facts pertinent to the hypnotic situation, while safeguarding individual confidences. To some extent this restriction has operated as a limiting factor in our discussions of the cases to follow.[5]

Case 1

JOE, WITH THREE HEADACHES IN HIS LIFE

The relationship between the sequelae and earlier anesthetic experiences first came to our attention in an interview with Joe two days after his hypnotic sessions. Joe reported: "I have had only three headaches in my life. Two of these followed operations and the other followed the last time I was hypnotized."[6] The first operation, at the age of six, was a tooth extraction for which he was given gas; the second, at the age of 9, was a tonsillectomy under ether. He reported that while on the operating table he could "still hear them counting at 50," and they gave him "three times as much ether as they had planned to." As he put it, "I wasn't struggling; I just wanted to watch." It is not surprising to learn that Joe was not a very susceptible hypnotic *S*. He scored at the 28th centile on both days of attempted hypnosis, passing three of the 12 tests on each of the days, only those tests commonly passed on the basis of waking suggestion. After the first day of attempted hypnosis he felt groggy for 15 minutes. After the second day he 1) had a severe headache which, although it lasted only 15 minutes, was sharply penetrating between the temples, "like a needle stuck between them"; 2) felt extremely disorganized for three hours, and 3) was amnesic most of the day: "If someone asked my name, I'd have to stop and figure . . . I couldn't even remember what was wrong with my car which was being repaired." These symptoms are interesting in terms of the last hypnotic instructions, one suggesting that *S* would be amnesic for his own name, and another suggesting that

[5] The names are, of course, pseudonyms. For convenience in referring to the cases they are numbered in consecutive order. Three of the cases are represented in Table 2, Case 1 being Case O in the table, Cases 2 and 3 being Cases N and C, respectively. The other three cases are from the same student body and were initially tested in the same way, but they did not come to the laboratory as part of the same experimental groups, and are therefore not part of the statistically defined sample.

[6] Another case made a similar direct and unsolicited connection between an isolated earlier experience (non-anesthetic, however) and a headache after hypnosis. This was a female *S*, whom we shall call Irma, who said, "I have had only two headaches in my life, one when I was suffering with high temperature when I had polio, the other after the first hypnotic session."

he be amnesic for the preceding tests. Joe passed neither of these tests at the time (*i.e.*, his memory was excellent).

In the course of the interview Joe was asked whether he could think of any reason why, after being so little hypnotized, he had had such an extensive after-reaction. He was thoughtful: "I usually am in control. I wanted very much to be hypnotized. Perhaps I wanted to be hypnotized enough that when there was no one forcing me I slipped into it. I have a notorious history: if anyone forces me, I *won't*, or I do the opposite. I would have liked to do the hypnotizing myself, with no one forcing me into it . . . In childhood, I could produce a similar state in myself by concentrating . . . I was an only child; we made many moves so that I often didn't have friends to play with. When I was alone, I'd experiment. I could think so hard that the noises outside would sound distant. I called it self-hypnosis. I also experimented with how I felt under drugs."

We see in this unusually lucid statement intense, conflicting motivation: a strong desire to experience hypnosis, and an antipathy to force from outside authority. Joe later amplified his statements about his doing nothing, or doing the opposite when his parents told him to do something; even if he knew quite well that the opposite way was very bad for him, he would go ahead.

Let us turn now to a brief description of Joe's reactions to anesthesia. With the gas at age six he experienced disorganization, people spinning around, coming closer or going further away; afterward he had a headache for 24 hours. As already mentioned, he required three times the usual amount of ether for the tonsillectomy at age nine, and the severity of his subsequent symptoms may be related to this excessive dosage: "I felt really bad for two days. I felt the aftereffects of the anesthetic for three days more upset stomach, headache, and couldn't see well." The year before hypnosis he had had another anesthetic experience, this time with Pentothal Sodium in connection with oral surgery; after this he had no headache, but slept for 24 hours.

When asked if he could think of reasons why his reaction to anesthesia and hypnosis might be similar, Joe replied that it was ". . . not wanting to lose control, my love of freedom." We suggest that this statement focuses the present conflict as it did the earlier conflict over the anesthesia. Is there also an element of redintegration? Does the submissiveness demanded by hypnosis remind *S* of the submissiveness demanded by the operations when he was a child? The fear and conflict, the marked reactions of headache and disorganization of those days were very likely reinstated by gross similarities between the two situations.

Joe's is essentially a struggle over induction ("to be or not to be hypnotized"), and his post-hypnotic symptoms stem from this phase of the hypnotic process.

Case 2

HOWARD AND THE FANTASIED GIANT HYPODERMIC SYRINGE

A dramatic illustration of the actual reliving of an earlier experience with chemical anesthesia was provided by one male *S* who had an anxiety reaction after his first experience with hypnosis severe enough that a few minutes after leaving the laboratory he came back for help. He was reassured by one of us (ERH), and an appointment was made for follow-up interviewing by another (JRH). No additional sequelae were reported, but in the later interview *S* gave an account of what had happened within hypnosis.

Howard said he came to hypnosis with an attitude of great skepticism but no uneasiness. To him it was all "hocus-pocus." The female hypnotist, Mrs. M, helped him overcome his skepticism much more than he had ever intended, and he found himself feeling extremely drowsy. What troubled him most: "I kept seeing a rolling form like you would experience if you had been washed under a large wave. A blackish, cylindrical form, vaguely cylindrical. The cylinder was always in this direction [*S* demonstrated], swirling, rotating on its axis, these grays and black mixing. Tumbling, rolling, as though being rolled on a wave." He showed the size of the cylinder, which was about one and one-half feet long or possibly more. After describing the cylinder, he said suddenly that he had forgotten to tell Mrs. M that he was *still drowsy after she told him to wake up.*

Later, in reply to the routine questions about anesthesia, *S* told of having broken a leg in a fall at age 13. In the course of having the fracture set he had had two hypodermics. He had perceived the first syringe as of normal size, and the injection had produced only dots on the ceiling and a swimming sensation before his eyes. He had needed an additional amount. This second syringe he recalled perceiving as a "syringe two feet long and six inches in diameter. The last thing I could remember." The hands holding the syringe were distorted in size--very large. When Howard was asked if there were any parallels in the hypnotic experience, he mentioned the "cylindrical body . . . it was vaguely in the same position, sloping down towards me." Quite surprised as he continued the comparison, he concluded that the cylinder he saw in hypnosis was the same size as he had perceived the second hypodermic needle: "Both were about 2 feet long. I was on my back and only saw it . . . approximately the same proportions . . . approximately the same angle . . . the right end of the cylinder was not well defined."

In retracing our steps, we find great interest in *S*'s associations after he had first described the cylinder. He noted he had continued to remain

drowsy after the hypnosis was over. Was this related to the way he had remained drowsy after his experience with the second syringe at age 13? He also described the hypnotic cylinder in terms of its tumbling around, on and under waves; to denote his state of equilibrium at the time of his second injection, he had used the phrase *swimming sensation,* which can so clearly be related to waves. As to both his initial surprise at seeing the similarities and his later conviction about the similarities, there is little doubt that this was a genuine redintegrative experience. Howard's mother, who had been with her son at the time of the operation, confirmed his account of the earlier experience when we asked her to come in for an interview.

Part of Howard's conflict which he brought to the anesthesia-operation situation and to the hypnosis involved his rejection of outside control. He and his mother spoke of his extreme stubbornness. When he came to hypnosis he had no intention of being hypnotized. We hypothesize that two circumstances changed this picture: 1) He found the hypnotist, Mrs. M. a warm and motherly person. (As an only child, according to his mother, he had been "petted and spoiled.") 2) As he relaxed, the hypnotic situation received powerful reinforcement from that earlier situation of passivity when the second hypodermic had insured his co-operation. As the visual image of this syringe recurred he relived the coercion, with resulting drowsiness and feelings of panic.

The case mentioned earlier, where hypothermia redintegrated an experience of near-freezing in childhood (31), shows similarities to Howard's. One *S* in our series had a reaction associated with an earlier loss of consciousness caused by heat exhaustion. Some years before, Ann had experienced yellow waves while prostrated with heat. During the hypnotic experience she saw these same yellow waves but, unlike Turner's case, did not relive any change in temperature.

Case 3

DOROTHY, WITH HYSTEROID SYMPTOMS AS SEQUELAE

Dorothy illustrates the spontaneous symptomatology which can ensue when motivation for hypnosis is high enough for it to take place in an *S* who ordinarily does not relinquish control. The material suggests a relation to earlier anesthesia.

Dorothy showed marked symptoms issuing from her submission in the established state: complaints of hysteroid symptoms after hypnosis, including occasional dizziness and numbness in arms and legs when lying down.

As Dorothy participated in some of the advanced tests the hypnotist noted that, when he reached the count of 15, she reacted with nervousness.

Afterward, in the interview, she showed confusion as to the counting that had actually been done. Asked later about operations, Dorothy replied that at age six she had had a tonsillectomy with ether as the anesthetic. When she was told that she should try to reach a count of 20 she tried very hard but "got to 15 or 16, went off and remembered nothing." This experience has recurred to her many times since, how she *tried* to reach 20 and got only as far as 15 or 16. She has been told that while under the anesthetic she kicked and reacted so violently she had to be held down. Her preparation for the tonsillectomy as a child involved no mention of the approaching anesthesia: she had waved goodbye gaily to her parents- then the advent of the ether took her completely by surprise.

One of the advanced tests was hand anesthesia. She said that, in hypnosis, "anesthetizing my hand was the most vivid of all the experiences." As the hypnotist was testing her hand with pins, she had the thought that anesthesia could "spread to my arm, other hand and arm, all over." Do we see here a generalization potential typical of ether anesthesia and not of what should have been circumscribed hand anesthesia? Dorothy, who had marked verbal facility, displayed her conflict over anesthesia in still another way: she asked the interviewer how to pronounce "anesthetize," saying that though she had used the word many times she always stumbled over it.

During the hysterical attack which followed hypnosis by a week or so, and which was in some ways related to it (but with other precipitating factors also operating), Dorothy said her major symptom was the feeling that her hands, arms, legs and mouth were becoming numb and anesthetized. We see how these symptoms carry out the thought she had had when her hand was anesthetized in hypnosis In the fact that she added her "mouth" to the list, do we see some reflection of the earlier operation for a tonsillectomy *via* the mouth, and the ether mask which covered it?

This *S*, coming from a home where individual freedom was emphasized and where correspondingly less emphasis was placed on discipline and conformity, had had a childhood more like our less susceptible *S*s than our more susceptible ones. Hypnosis threw her into conflict because she had to submit to authority to have the novel experiences she was always seeking. She submitted and scored above the 90th centile. In describing herself, Dorothy spontaneously mentioned how she liked to be in control of all situations: "I *hate* giving up leadership, the control . . ." When asked why, then, she let herself submit to the control of the hypnotist, she replied, "Curiosity. *Intense* curiosity about hypnosis. I wanted to *know*. In a process of thorough investigation, you experience it." This trait appeared in other situations, *e.g.*, if she was curious about mountain climbing she would see to it that she climbed the mountain even if it was dangerous and meant some risk

to her life. She spoke of her will to do, the "I'm *going* to be hypnotized" attitude with which she came to hypnosis. At the time she did not visualize the degree of loss of control: "Later I realized I didn't like it."

Dorothy idolized and idealized her father, who was a very able, forceful person; she both identified with him and was close to him. She was not interested in boys her own age—they could not "measure up." In such a setting of Oedipal attachment, hysterical symptomatology frequently takes place. The hypnotic situation, with its emphasis on the passive role and submission to a male hypnotist, mobilized sexual desires as well as defenses against them. Conflictual feelings over sex, as well as conflictual feelings over control, are reflected in the symptoms of numbness stemming from earlier experiences, including that of anesthesia.

The symptoms closely related to hypnosis were cleared through several psychotherapeutic sessions, so that there were no lingering effects of the experience with hypnosis.

Case 4

MARGARET, WHOSE LATER HALLUCINATIONS REINSTATED THE HYPNOTIC SUGGESTIONS

The fact that a suggestion has been given under hypnosis, responded to (or not responded to), and then removed prior to the termination of the hypnosis does not guarantee that there is no residue from this suggestion. Margaret was disturbed the night following hypnosis by the buzzing of a fly that she knew to be hallucinatory, and by hearing someone call her name when no one was near. At the termination of hypnosis her memory for all experiences had been reviewed; she had known that the fly hallucination was one of the tests, and that in another she had been supposed to hear someone calling her name. During the hypnotic session she had reacted to the fly and passed this test, but when she was interviewed the next day she had apparently repressed this experience, for she insisted she had not reacted at all to the fly. Near the end of the hypnotic session she had heard a voice calling her name when the hypnotist was counting for her to wake up: "It seemed silly to answer, so I didn't."[7] Margaret had a need to please others and to fulfill their wishes. Her reaction to unfinished business: "I have a guilt feeling if I haven't done something I was supposed to do . . . Something must happen if it's supposed to happen." At the same time she was very reality-oriented, and the hallucinatory items threw her into conflict: she reacted to the fly, but repressed the memory of having reacted so irrationally; she reacted

[7] The post-hypnotic hallucinated voice is part of the Friedlander-Sarbin scale that was being used in a modified form at the time Margaret was being tested (6).

reluctantly to hallucinating her name as being called, and failed this test in the eyes of the hypnotist. Thus her conflict was over unfinished business, over not being able to fulfill the wishes of the hypnotist as to items which were ego-alien because of the degree of their unreality. At one point, in describing her relations to teachers, she said, "At school, if a teacher told me to do something, I had to go home and do it." Is that essentially what she did that night in response to the commands of the hypnotist? Perseveration may occur in the midst of such compulsivity. After this interview, *S* was hypnotized again, this time by a senior staff member, and was told that she had fully completed the job, to her satisfaction and to ours. When seen later she had had no return of symptoms.[8]

Case 5

BARBARA, WHO FOUND HERSELF GROWING SMALLER AS SHE LEFT HYPNOSIS

Barbara participated in the pre-test of another scale that included an age-regression item. She failed to respond to the suggestion to regress within the hypnotic state but, returning home after the hypnotic session, she suddenly imagined that her body was shrinking in size. In an interview the next day she described it in the following terms: "I had an actual physical sensation of shrinking. It seemed odd that the objects around me stayed constant. The change in my size was so real that I thought the objects should change too." She had shrunk to about half her actual size and she *felt* somehow that the angles of the roof and other objects around her should be viewed through the eyes of a small person; instead, she was still looking at the objects around her from the angle of one who was tall. She found this shrinkage and incongruity an upsetting experience, tried to turn it off, and discovered that she could. Then she decided it had been so interesting she wondered if she could turn it on again. Trying, she immediately became half size. She alternated a few times. At the very end she became dizzy and felt some loss of equilibrium. The whole experience lasted about three minutes.

What thoughts preceded this episode? When *S* was asked this, she replied that, just before this experience occurred, she had been thinking of the hypnotist's question as she finished writing her name. She had been asked to write as though she were back in the second grade: "He asked me if I had become any smaller. I hadn't then, but maybe I did it later."

In this *S* there was a conflict between being very responsible and being

[8] Another female student, Ellen, driving her car home alone from a hypnotic session in which, although fully co-operative, she had not shown herself to be a very good *S* was troubled by the voice of the hypnotist talking to her as she drove; she slept for several hours after reaching home.

a carefree child again. At home, as the protected child of much older parents she had been asked to do very little, and much had been done for her. Good grades at school in a small community had come easily. At college, adjustment had been more difficult, and winning friends and making good grades took more effort. She was trying to make that effort and to be responsible. At the same time the wish to regress—*i.e.*, to return to the easier life of childhood--was a strong one. The defenses against such regression had been built up as *S* had realized the necessity for being on her own.

In the overall regression demanded by hypnosis, Barbara responded in only moderate degree, scoring at the 50th centile for the test as a whole. We believe that the specific demand for age-regression touched her intense wish in a way she was unable to resist. Hence in her subsequent unconscious response to the hypnotist's asking her if she felt smaller, she relived briefly her wish to be a little girl again.

Barbara's experience represents both perseverative and redintegrative processes. The perseverative question (Do you feel smaller?) recurred because it had touched on a deep facet of the personality; what was redintegrated was not a specific experience but a way of life (being a child again).

Case 6

DICK, WITH PANIC DURING INDUCTION

The case of redintegration which we report now is of more than average interest in our series because of the emotional outburst which occurred during the induction phase. Although we catch glimpses of symptomatology related to induction in the sequelae that have here been our primary concern, we rarely see symptoms during induction in this group of non-patient college students. Dick was a member of the special "volunteer" sample mentioned earlier. When the hypnosis followed a standard procedure with suggestions that the eyes would close, Dick not only closed his eyes but shut them very tightly, became markedly tense and began to shed tears. Sighing, moaning, sobbing, clenching his hands into tight fists and setting his jaw followed in rapid order. When roused from the state he immediately calmed down, associating his reaction to "fear or some sexual reaction." Although the session was carried through to completion with his willing co-operation, he was unable to re-enter hypnosis, and failed to respond to the hypnotist's specific suggestions.

Dick told the interviewer, "I really wanted to be hypnotized. He [the hypnotist] says, 'Relax,' and I'm tense. I kept thinking, 'What if this doesn't work . . .' He says, 'Your eyes are closing' . . . and I felt relief that they *were closing. But they kept on closing tighter and tighter* . . . I

thought, 'I'm going to do it.' It was such an intense emotional experience." When the hypnotist asked him what it felt like Dick said he didn't know. One thought was of sex, another was of fear . . . "When you're *really* frightened." Dick continued in an associative way to say he used to be so frightened of spiders. This hypnotic experience reminded him of experiences "when you're so frightened you can't move."

After further discussion he was asked about times when he had been disciplined. As he talked, it was as though a light dawned. The stance which he had assumed in hypnosis was like that when he had tensed, expecting the blows of his mother. As he sat in the chair in front of the interviewer he tensed his face, body and hands the way he always had when her blows were about to fall or were falling on him. His eyes were closed tightly with the utmost effort, his jaws set and his hands clenched. He tried it several times "Just the way I was in hypnosis," he said in a startled way. He described the beatings: "You stand there, you're really mad, you can only get beaten. First would come the tensing. I'd be caught in a corner and there'd be no time to run." As a boy *S* had always tried to run away, but this usually had been impossible, since his mother waited and cornered him. The father had been a stern disciplinarian but did not corner him as his mother did.

When the interviewer returned to Dick's early statement that the hypnotic experience reminded him of sex, he was puzzled, and said it had been a passing thought he could not explain. In a number of subsequent interviews with this *S* it became clearer that the sadomasochistic relationship between parent and child, as reflected in the beatings, was recognized unconsciously as combining love and hate. His mother started the severe punishment, but Dick came gradually to be provocative to have this attention, which was a major source of her interest. He described the situation when he was older: "If my parents told me to do something and I didn't want to, I would say, 'No.' They said, 'Yes' I might say, 'You can hit me but I'm *not* going to do it.' Then I'd get hit."

The induction procedure of being expected to submit to the domination of another person while seated in the corner of a small room reinstated a large segment of past experience vis-à-vis authority. With a faithful reproduction of reactions to authority shown as symptoms, this case adds to our knowledge of how the induction phase may represent primarily a conflictual response to authority.

Discussion

Much of the work in our laboratory has been guided by a general developmental interactive theory (9), according to which we have sought to show, on the one hand, continuities between early childhood history

and what happens in the present within hypnosis, and, on the other, what it is about the present hypnotic interaction that results in the phenomena we observe. In another series of cases (11) we have shown some of the childhood experiences that are conducive to hypnotic susceptibility; some similar considerations bear upon the occasions for sequelae. As the case reports have indicated, sequelae result primarily from conflict between opposing tendencies. Because the specific aberrant responses are often traceable to childhood experiences, we gain some support for the more general theory that typical responses within hypnosis may also be traced to experiences from childhood.

Conflicts resulting in sequelae include those that arise in the induction phase and those that arise in the established state. Distinguishing features of the induction and the established phases have been emphasized by many writers (7, 14, 15). Consequences may be found at any time, either within hypnosis or after the session is over, as the above cases have shown.

The Induction Phase in Relation to Sequelae: The induction phase involves the gradual relinquishing of control to the hypnotist, which brings to the fore whatever unresolved problems the person has with respect to authority. If there is some resentment of or resistance to authority, this opposes the accepted contract to co-operate with the hypnotist, and the resolution of this conflict can take several forms: failure to be hypnotized, symptoms within induction, or sequelae. The symptoms may arise as reintegrations of childhood experiences of which the circumstances of hypnosis serve as reminders; this is one meaning of the regressive transference within hypnosis.

Let us examine the kinds of experiences observed within the induction phase a little more closely. First, with a non-patient sample of university students the induction phase is usually uneventful. This means either that the authority conflicts are not severe, or that the conflict is resolved through not becoming hypnotized and without guilt about the failure. Second, those who in this population do become disturbed in the induction phase have generally been shown to be reliving some earlier conflict with authority, or some overpowering experience that evokes fear. Among the cases are those of the boy who defied authority by not becoming hypnotized, as he had defied authority by not going under to a normal dose of ether: he then proceeded to have the experience he wanted by hypnotizing himself after the session was over. The boy who reacted with clenched fists and tears reinstated his defiance and fear of punitive parents who cornered him, as he was now cornered by the hypnotist.

There are many subtle relationships here that call for a more detailed theoretical treatment at some later time. Childhood omnipotence becomes curbed or handled in various ways, and these resolutions are likely to be reflected in hypnotic induction. To some extent the curbs imposed by authority within initial induction are situational and not personal, so that,

no matter who the hypnotist is, there is a kind of immediate readiness to react with familiar patterns—what Macalpine (16) has called a "transference readiness." When the induction phase proceeds without conflict, it may have one of several outcomes: if the subject is afraid of becoming passive or submissive, and has no strong need to become hypnotized, then he is comfortable to find that he cannot be hypnotized, if he is unconflicted about seeking a passive relationship, he may become hypnotized and enjoy the indulgence of the hypnotist's attention; if his desire for new experience is strong, and he has no doubts about his own powers, he may turn hypnosis into an adventure in which he makes the hypnotist his servant in leading him into experiences that transcend the normal Thus no one kind of person is susceptible or insusceptible to hypnosis, and the hypnotic state does not have the same meaning to all hypnotizable subjects.

The question can be raised as to why neurotic patients coming for psychotherapy, in contrast to our group, are reported to show a high frequency of disturbance during induction. Perhaps a conflict is engendered between strong motivation to submit for the sake of symptom relief and long-standing attitudes against authority. We consider this a possibility, too, in the psychiatric resident group with whom Gill and Brenman (7) worked. They mention that emotional reactions were particularly apt to occur in residents who were seeking some benefit, such as a psychoanalysis. The motivation for hypnosis of these *S*s may have been heightened by hope either of help with personal problems, or of help toward professional advancement (psychoanalytic training being at a premium), this motivation, conflicting with their attitudes toward authority, then may have given rise to such emotional upsets as crying as they attempted to curb their resentment over the submission. In our systematic sampling, students were rarely motivated by circumstances over and above the credit received as a laboratory requirement for a definite amount of time so we were not dealing with special pressures to overcome their natural inclinations Mild conflictual reactions, instead of showing as responses during induction, can be postponed and appear afterward in the form of headaches or dreams.

As already indicated, some *S*s handle the conflict over induction by not becoming hypnotized, thus retaining control. Others make a smooth transition to the hypnotic state, possibly through some kind of dissociation or fractionation of the ego. Still others show compromise reactions, of which the sequelae we report may be an indication. Sequelae are not the only defenses against hypnosis *e.g.*, one boy who reported that at age six he had required a double dose of ether also failed his first appointment. Another asked innumerable questions of the hypnotist and thereby retained control. We reported the case of the boy who reacted by resisting hypnosis, but hypnotized himself later, showing mild sequelae.

We are making the interpretation that the induction phase is responsible not only for events observed within induction, but also for sequelae that

follow rather unsuccessful inductions. For example, the dreams reported as an aftermath of hypnosis were frequently those of *S*s slightly or, at most, moderately hypnotizable. In the two initial sessions no suggestion was made to dream during hypnosis or post-hypnotically. For the most part the students who related their dreams to hypnosis had these dreams on the following night or nights; one *S*, however, fell asleep after returning to his room immediately after hypnosis and had such a vivid dream that he came back to the laboratory to tell us about it. The transference and regressive features of these dreams are striking, and are consistent with the interpretation that the attempted hypnotic induction stirred up early conflicts relating to authority (parental) figures. One student began to dream again of a dead father about whom she had not dreamed for several years; another dreamed about nearly-forgotten grade-school events. Another *S* reported that a recurrent childhood dream had suddenly reappeared after hypnosis: "I dream that I am blind, but can distinguish slight degrees of light around the edges of solid forms. I can't stand up and nobody will help me." It is interesting to conjecture that any weakening of repression would show first in dreams, because regressive experiences are best tolerated there. The highly hypnotizable *S*, able to tolerate submission and regression, does not require a dream to deal with what was stirred up in the induction; the less hypnotizable *S*, resisting hypnosis despite his desire to cooperate, is left with unfinished business which may motivate the dream.

The Established Hypnotic State in Relation to Sequelae: The established hypnotic state represents one resolution of the conflicts stirred up in induction, and even those who go through a period of disorganization, uncontrolled affect and disorientation may achieve a new and satisfactory integration within the established state. This is described by Gill and Brenman (7) as the formation of a subordinate but integrated ego structure, a subsystem within the ego. New conflicts may, however, be stirred up within this state. Some of them take the form of conflicts over reality orientation, as the hypnotist suggests departing widely from reality, either as perceived cognitively (*e.g.*, positive and negative hallucinations), or as interpreted morally (*e.g.*, in violation of conscience or acceptable social conduct). The student of Brickner and Kubie (3), told to violate a simple social convention, resisted for 34 minutes after arousal from hypnosis. During this period he experienced nausea which, however, cleared as soon as he completed the post-hypnotic assignment. The authors observed that parents operate as unwitting hypnotists, giving commands that the child incorporates as an internal "must" system. When the hypnotist makes demands that run counter to these early superego figures, the result is a conflict, with concurrent symptoms. In the regressed state some defenses are weakened, and suggestions to regress in age or to recall early memories may revive traumatic experiences. The continued passive-dependent relationship to the

hypnotist is also likely to stir up sexual anxieties, overt or covert, especially among those troubled about passivity.

The problems activated by the specific suggestions within hypnosis are often rather obvious, as when *S* relives emotionally an early traumatic experience stumbled upon more or less by chance (*e.g.*, Turner's *S* who had once been terrified by near-freezing and had anginal symptoms following suggested hypothermia). One of our *S*s was greatly troubled by having been permitted in age-regression to play again with a pet dog that had been lost in her childhood, because the experience was cut short and the dog taken away from her as abruptly as before. The conflicts stirred up by the general nature of the hypnotic relationship are more difficult to assess, and it is these upon which the sequelae sometimes throw light. Case 4 in our series had the kind of reality-orientation that made her reject the hallucinatory experience while in the established hypnotic state, yet produce it when alone at home because of the other pole of her conflict: the need to please. A second *S* (Case 5), because of her fear of her need to regress, failed to regress in age in response to suggestion in hypnosis, yet found herself becoming child-sized when she left the laboratory. A third *S* (Case 3) reacted with thinly disguised sexual responses after the sessions were over. We believe that these responses represent later resolutions of conflicts engendered within the trance state by the nature of the relationships there; several *S*s made responses after the session ended that reflected specific suggestions made within the hypnotic state. These responses, delayed until the session was over, could just as well have been made within hypnosis except for the conflicts over interpersonal relationships that were heightened in the midst of the hypnotic state.

While psychodynamic concepts have been used in describing what was happening within induction and within the established state, most of what has been said could equally well be translated into the language of learning theory. The main point is that there is continuity between early experiences, later experiences outside hypnosis, and those evoked within hypnosis. If these other experiences are considered to be habits or memories, the likelihood of their reinstatement will depend upon similarities between the present situation and those earlier situations in which the responses occurred. Our specific findings that difficult experiences under chemical anesthesia tend to be associated with troubles within and following hypnosis—can be explained partially on this basis. Redintegration, explained in terms of learning theory, requires that an *S* capable of these experiences be presented with cues similar to ones to which he has responded in the past; then there is a high probability he will respond similarly in the present. The experience of chemical anesthesia accompanies surgery, and the combination is no doubt a frightening experience for a child. We need to study in more detail the critical ages when such experiences prove disturbing, and to gain more information about the operation, the prepara-

tion for it, and the outcome.[9] We need to find ways of determining to what extent the connection between these experiences and hypnosis rests upon a common personality background brought both to surgery and to hypnosis, and how much the connection depends upon the evoking of residues of the surgical experience itself. To the extent that some of the *S*s were extremely resistant to the chemical anesthetic, and required excessive doses, we may suppose they brought to that earlier experience the kind of resistance to loss of control that they brought to hypnosis. To the extent that the counting in hypnosis reminded them of the counting in the earlier experience, we may conjecture that some residue of that experience could be reactivated in the present. Occasionally a *S* spontaneously related aspects of hypnosis to anesthesia. One, who reported struggling against ether at age seven, described the hypnotic experience thus: "I felt lightheaded as if breathing ether."

Other experience revivals within hypnosis can be understood on the same basis. Generalized conflictual attitudes, such as those toward authority, are also amenable to understanding in terms of learning theory, as developed, for example, by Miller (19).

We believe that our general statistical findings and the case materials, taken together, show that sequelae to hypnosis are fruitful in the search for the meaning of the hypnotic relationship to *S*. The power struggles within our non-patient population are undoubtedly milder than those that are met in therapy with neurotic patients, who are clinging to symptoms at once gratifying and disturbing. It would be highly desirable to have for a patient population the same kind of information that we have collected on a non-patient population - that is, information on degree of hypnotizability, aberrant reactions within induction, within the established state, and following hypnosis, for *all* of the cases treated.

Summary

The literature on the aftereffects of hypnosis is lacking in statistical studies that relate unexpected or unintended consequences to the total population from which the cases are drawn. Fifteen cases from the literature of the last few years show that symptoms may develop after hypnotic symptom removal which are more severe than the original symptoms, a number being of psychotic intensity. They appear, however, chiefly in patients with a long history of illness, and perhaps showing psychotic trends prior to the therapy; there is no way of knowing the total sample from which they are drawn, or to what extent the consequences are determined

[9] The study of recall within hypnosis of experiences while under anesthesia raises additional interesting problems (*e.g.*, 4, 8).

by ill-advised techniques of psychotherapy rather than with hypnosis as such. Symptom removal by techniques other than hypnosis occasionally has similar consequences.

It is well known that collateral responses may occur within hypnosis, other than those suggested by the hypnotist. They may occur within the induction phase, within the established state (either as a general manifestation or as a response to specific kinds of suggestions), or after leaving hypnosis (whether or not related to specific post-hypnotic suggestions).

The present study is concerned with the sequelae to hypnosis in a non-patient sample of students coming to the laboratory for scientific purposes, so that neither therapy nor persistent post-hypnotic suggestions were involved. The sample of 220 *S*s included 114 male and 106 female students drawn from classes in introductory psychology.

Sequelae attributed to the hypnotic experience were reported by 17 of the 220 *S*s (7.7 per cent), but many of these were minor and fleeting, and none was of psychotic magnitude. The sequelae that lasted as long as a few hours were limited to five cases (2.3 per cent of the total sample). The results support the view that a routine experience of hypnosis is generally harmless in a student population, but *E* (or therapist) should be alert for possible aftereffects, and provisions should be at hand for occasional brief psychotherapy, even though the experiments themselves are not oriented toward therapy.

A specific finding was that sequelae to hypnosis were related on a non-chance basis to bad earlier experiences with chemical anesthesia, chiefly ether anesthesia in childhood. Those reporting severe nausea and headaches following chemical anesthesia or fighting the anesthetic and requiring more than expected, had sequelae to hypnosis more frequently than did those who had had anesthetics without reported discordant concomitants. The difference between the groups was significant beyond the .001 level.

Six case histories are given, three relating the sequelae specifically to earlier experience with anesthesia, three to other circumstances. All show reactions under hypnosis that indicate dynamic similarities to personality characteristics arising from childhood experiences.

It is conjectured that the conflicts within the induction phase of hypnosis that produce either immediate or delayed symptoms are primarily those having to do with the exercise of power and the reaction to authority --hence, conflicts between the conscious willingness to be hypnotized and the unconscious resistance to or fear of the submissive role required. The individual forms that such conflicts take are highly varied.

The conflicts within the established state differ, in that the state is not reached unless the conflicts of the induction are at least temporarily resolved. The new state, which has regressive characteristics, makes *S* vulnerable to conflicts based on reality distortions (as in suggested hallucinations) or ethical-social issues (as in suggested behavior violating his moral code

or superego demands). Sometimes specific suggestions revive early experiences that were traumatic or provocative of fear.

While the language of psychodynamics is appropriate in the discussion of these cases, the many redintegrative factors also suggest that learning theory can have much to say in explanation of them. Because learning theory has ways of dealing with conflict and conflict resolution, it can also encompass some of the problems discussed as conflicts over authority, commonly treated in psychodynamics as transference problems.

The many reflections of earlier childhood experiences in the sequelae, including some of the dreams, suggest the promise of a developmental theory of hypnosis.

8

Highway Hypnosis: An Hypothesis



Griffith Wynne Williams

Abstract: The hypothesis is advanced that some accidents on modern superhighways may best be attributed to a form of naturally-occurring hypnosis. Factors conducive to trance induction, such as monotony and bright points of fixation, are discussed. Illustrative verbal reports of trance-like experiences while driving are presented. It is shown that hypnotized subjects can successfully perform complex driving behavior. Methods of minimizing the trance inductive effects while driving are discussed.

I

Modern superhighways are praised for their utility and convenience but criticized for their monotony. The superhighway is a smooth, uninterrupted stretch of concrete without stoplights or cross traffic. There are no steep grades and the curves are wide, walking is forbidden, and slow-moving traffic is diverted to other routes. Driving under these conditions makes little demand on the driver's orientation to reality; the distracting stimuli are few.

Similar praise and criticism may, with justice, be directed toward the modern car. The seats are designed for maximum comfort but the same posture must be maintained for extended periods. Little steering is required, particularly on the straight, broad stretches, while the steering mechanism is designed for "finger-tip control." The engine runs smoothly and a muffled "purr" accompanies the hum of the tires; the body is so suspended that jolts and vibrations are reduced to a minimum. Elements of safety and freedom from distraction found on modern highways and of comfort and

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facility in handling modern cars have, it is hypothesized, introduced a new danger into contemporary driving.

Under these altered conditions, features such as glare—though not distinctive of the modern highway and car—gain significance. On the new highways the "wet spot" or area of glare reflected from the road is constantly in the driver's range of vision and is often maintained at an unvarying distance. Another generally unvarying point of fixation is the glare from the hood and dashboard. These two bright points are generally within the driver's visual area; not only do they tend to fatigue the eyes but they add to the unvarying pattern of stimulation to which the driver is subjected.

Both monotony and bright points of fixation are part of the repertory of hypnotic induction. They are not only ancient features, but contemporary and very effective. Monotony induced by drum beats, swaying, chanting, rhythmic breathing, or dancing has been utilized to induce a trance state throughout recorded history, as is shown, for example, by the records of the ancient Hebrews and Hindus. It is also in contemporary use in such varied cultures as the Balinese, the central Siberian, and the diverse cultures of the African continent. Wherever, in fact, anthropological records are adequate, monotony is always mentioned as an aid in inducing trance (Williams, 1952). Monotony is also used in the psychology laboratory for experimental trance induction. Subjects are told to listen to soft or barely audible music, to the ticking of a watch or metronome, or to the experimenter who keeps repeating some specific phrase, such as "your eyes are getting tired, tired . . . ," "you are going deeper, deeper, deeper all the time. . . ." Any such activity requires little conscious attention to a small group of stimuli. We react to a very small part of our surroundings while relaxed (Shor, 1959). This is why monotony and relaxation are so universally sought as highly useful preliminaries for trance induction.

The use of a bright point of fixation is also both ancient and contemporary. The ancient Egyptians used a bright object at which the person stared. Hindus stared at the umbilicus or at a hypothetical spot within the forehead. There are many modern variations: a small flashlight, hypnotic crystals, rotating mirrors to reflect small, bright points of light. Where simplicity is sought, a subject can stare into the experimenter's eye, at the tip of his finger, or at the end of his fountain pen. The common factor in these seemingly varied methods is that attention is focused on a single small area. Fatigue or drowsiness soon follows so that other stimuli become relatively ineffective. There appears to be a close parallel between the bright point of fixation of the hypnotist and the points of reflection from the road and car to which a driver is subjected. If one set of factors induces trance, it is plausible that the other will. Considerable fatigue quickly develops when a bright light is used or when the eyes are turned upward toward a point within the forehead. While not a necessary condition

for inducing trance, a slight degree of fatigue may be advantageous. Some drivers report unusual difficulty when they must drive toward the sun. The glare from car, road, and sky together constitute a highly fatiguing pattern of stimulation. The similarity between effective methods of hypnotizing and conditions that prevail on our highways lends credence to the hypothesis that some accidents can be accounted for by the fact that the driver becomes hypnotized to some degree; i.e., the driver is subjected to a pattern of stimulation known to be highly efficient in inducing a trance or hypnotic state.

II

The experimenter deliberately helps his subject to enter a trance, but on the highway the trance occurs spontaneously. This difference, however, is not an important objection to the hypothesis. All trances, whether in the laboratory or not, are self-induced to a greater extent than is generally appreciated. Beyond helping to motivate the subject toward cooperation, the most that an experimenter can do is to provide a suitable setting of monotony and points of fixation. The experimenter can also limit the person's sensitivity to extraneous stimulation by directing his attention to the sensations that arise from his relaxed muscles or fatigued eyelids. The experimenter cannot externally "put someone into a trance" as is commonly believed; the most that he can do is provide a favorable setting.

Another objection maintains that trance is a rare phenomenon, experienced by only a few, and then under the artificial conditions of a laboratory or vaudeville stage. This objection is also of little weight, however. Irrespective of whether it is recognized as such, some degree of trance occurs during many of our daily activities. The fisherman who stands motionless in rippling water, the hiker or hunter who returns home to rest and watch lambent tongues of flame, and the vacationer who gazes at a quiet body of water or listens to the recurrent sound of waves, all experience some degree of trance though it may pass unverbalized (Williams, 1952).

The experience of many researchers confirms the statement that trance can be a self-induced state. An experienced worker frequently finds that it is difficult to refrain from going into a trance while he is inducing it in another. This occurs even though the experimenter himself has never been formally "put" into a trance. He must then turn his attention to the window, read the titles of books in a nearby bookcase, or distract himself in some other way. The fact that he realizes that this is likely to happen, however, perhaps may be his best preventive measure—as perhaps it is for those who experience comparable difficulty on the highway.

One experimenter, for example, had tried all recognized methods but could not successfully aid a volunteer to enter trance. As a last resort,

the subject was told to sit quietly and listen to the ticking of a watch that had been attached to the back of his chair. The experimenter then left the room. On his return several minutes later, he found his volunteer in a deep trance: the monotony created by the ticking of the watch apparently had succeeded where the more active methods of the experimenter had failed (Dorcus & Schaffer, 1945). The difficulty probably arose from the distraction furnished by the experimenter; the ticking produced only a passive monotony.

III

The testimony of those who have survived an automobile accident is subject to reasonable doubt of its validity and is useful mainly when more reliable evidence is lacking. An accident is generally an unfavorable situation for careful observation; reports are apt to be inaccurate even in situations where there is no attempt either to deny responsibility or to project the blame on someone else. Reports filed by the police are more factual, but they often bear evidence of pressure to assign a cause in every case even though this is only vaguely established. This tendency gives their reports an air of finality and authenticity that may not be warranted. On the possibility of being hypnotized while driving, more reliable evidence can probably be obtained from those who have not been involved in accidents; the testimony, in other words, of experienced drivers who are not encumbered by legal responsibility or the need to rationalize.

Drivers have often reported to the writer experiences which closely resemble those that occur in trance.

A professional woman was sufficiently frightened and puzzled by periods of amnesia or forgetfulness while driving, to seek psychiatric aid. Her work required her to drive long distances over roads in New Jersey that are heavily traveled only in summer. She repeatedly realized that she could recall nothing of what had happened over stretches of 25 or 30 miles of a familiar highway; she could recall stopping at the traffic lights in the town preceding the one she was now passing through but could recall nothing in between. As a result of repeated experiences of this sort, she feared that this might indicate the beginning of some type of emotional instability. When she learned that driving under these conditions could induce a trance so that inattention or forgetfulness might be expected, she kept a careful watch on subsequent trips and verified the hypothesis to her satisfaction.

This type of amnesia is a familiar experience to many drivers, especially those who travel long distances over familiar routes. When they have passed the outskirts of a town, these drivers often realize, many miles beyond, that they cannot recall having passed the town. Alternate drivers and

helpers on these routes also report that a driver sometimes seems to be in a daze and to be operating his vehicle more or less mechanically. When they notice this, they engage the driver in conversation, nudge him, or otherwise distract him. In certain cases the same reaction is reported by passengers but their reaction would be more likely to pass unnoticed by others than when it occurs to the driver. One driver describes his experience as follows:

> I discovered this fact (amnesia) while driving at night from Portland, Oregon to San Francisco, California. The lights of a town approached and I realized that I had been in an almost asleep condition for about 25 miles. Inasmuch as I knew the road I had traveled was not straight, it was apparent that I had negotiated the road, making all the turns, etc. I did not remember the stretch of road at all.
>
> I purposely tried it several times after that and found that I could drive miles and miles without memory of it, and while resting. In each case, the moment any driving emergency appeared, I became fully awake.

Further illustration is found in the following report:

> We had started about 6:00 A.M. . . . I had driven for about an hour and had passed through Chehallis, Washington. My mother was dozing beside me, there was little traffic, and I was feeling sleepy. I blinked my eyes to break the dazed feeling and found that I had just crossed the Cowlitz bridge leaving Toledo, Washington. The 20-mile gap between Chehallis and Toledo had vanished in that blink. The highway was U.S. 99, the time elapsed was from a little past 7:00 A.M. to nearly 8:00 A.M. . . . but there was absolutely no memory of the 20 miles. (After describing several other experiences of a similar nature) These occurrences have always baffled and somewhat frightened me.

Another experienced driver mentions a "glassy stare," a physical characteristic almost invariably observed in trance, and also calls attention to some characteristics of the modern car that are pertinent to the hypothesis.

> Our latest car . . . practically drives itself, without any assistance from me. That's the point. On long trips I experience no appreciable fatigue but even on short drives, unless the road is such as to keep me alert, my eyes get set. I am sure they must look glassy and my condition resembles what I presume might be called a trance . . . I prefer driving mountain roads to the straight monotony of some of our superhighways. I often fear what might happen on a hazardless road.

Alternate drivers on long distance trucks report that when they notice the driver developing an expressionless stare it is time to distract his attention.

> Traveling north on the Henry Hudson Highway [New York] I very definitely felt mentally numbed by the steady speed of the car, by the long stretches of smooth-moving traffic, by the absence of stoplights. When I came to the end of the highway I seemed to "snap out of it". . . . I observed that the many signs along the poorer highway, plus cars going in and out of gas stations, plus the necessity of watching cars coming from the opposite direction seemed to keep me mentally alert.

Another report calls attention to the significance of being alone.

> I have noticed whenever I make a trip to New York City via the Merritt Parkway [Connecticut] that in spite of a good night's rest, I have to fight off going into a trance. . . I have observed also that if I go to New York City via the Boston Turnpike which passes through many towns, I always find the trip interesting and am never in danger of a monotonous drive . . . as well as I can recall, the only times the monotony of driving on a road like the Merritt Parkway has affected me have been when I have been driving alone.

Other experiences are reported to occur under the following two conditions: (a) when drivers are forced to follow trucks or other large vehicles for considerable distances or (b) when they drive at night so that the range of vision is limited to the area of the light beam.

> A few years ago, I nearly ran into the rear of a truck. Fortunately for me, I was accompanied by another person who abruptly ordered me to slow down, thus breaking the "trance" and most certainly averting an accident. I, consequently, have lost confidence in my driving and when, of necessity, I am compelled to drive, I find I am not as alert as I should be.

Rear-end collisions of this type occur under circumstances that puzzle police and traffic engineers. A truck will pull on to the shoulder, and a car which has been following it for some time will mechanically follow it only to end in a collision. There are no skid marks, there is no evidence that the brakes were applied, no evidence, in fact, that the driver had even seen the truck. The evidence suggests that the driver was drawn irresistibly to follow.

Night driving, of necessity, limits the stimuli to which the driver can respond. The light beam provides a constant, narrow channel of vision which varies but little on a smooth, straight highway. A vehicle ahead may block the range of vision and its rear lights generally remain at a fairly constant distance. Some drivers endeavor to follow a preceding vehicle during a night trip but others complain of what has been tentatively called "tunnel driving." This is a feeling that they are driving through a tunnel created by the narrow swath of light. Under these conditions a certain lethargy often occurs, a lethargy which can only be dispelled by turning on the radio, stopping and getting out of the car, or by some other distracting activity.

> During daytime driving, I can go for three or four hours (the usual length of time for any of my trips) without any difficulty whatsoever because there is a constant panorama to be seen on both sides of the road without even necessarily taking my eyes from the road. At night, however, traveling these same roads, I have sometimes had difficulty in taking my eyes from the road long enough to look at the speedometer, gas, and oil gauges . . . There was one time in particular when, with a bad tire, I could not drive over 35 miles an hour. It took me over

5 hours to reach home and I had to stop several times to get out, walk around, and in some way try to break this "trance" which I knew to be really dangerous. I have often strained to see beyond my headlights, which, although they are properly adjusted, do not seem to penetrate far enough into the dark.

At night the peripheral vision . . . is blanked out by the dark and the interior of the car, the chrome "nosepiece" and the highway are all that one can see. Concentrating on these alone, with few oncoming cars (in my travels), makes it very easy to fall into this "trance."

IV

There are many difficulties and misunderstandings which must be faced before trance will be generally recognized as one of the elements that may be responsible for highway accidents. One of these is the lack of information regarding the nature of trance. Those whose knowledge of hypnosis is restricted to vaudeville and hearsay are apt to regard trance as an either-on condition; i.e., a person either is in a trance or he is not. Every experienced worker, however, recognizes that there are degrees of trance ranging from light to extremely deep. Perhaps the deepest trance can be induced only through systematic effort. But the lighter forms, as mentioned earlier, may occur spontaneously and pass unnoticed during our daily activities. In the lighter forms there is pronounced relaxation both of physical tensions and of mental alertness. As a result, a person's reaction time is slower than normal and his sensitivity to what is going on around him is diminished. The number of stimuli to which he responds is also decreased: a person in hypnotic trance ordinarily responds only to requests or other forms of stimulation that come from the hypnotist.

Another and probably more serious difficulty in estimating the effect of highway hypnosis is that the layman considers hypnosis and sleep to be essentially alike. These two conditions can, however, be reliably distinguished in the laboratory. In hypnosis, learning can take place, weights can be lifted and compared, and muscles exhausted to study the onset of fatigue. Tooth extraction and childbirth can be made painless and hypnoanalysis can be carried on. None of these activities can be successfully carried out in sleep. There are, in addition, many experiments in which a comparison is made between reflexes and other physiological phenomena in sleep and hypnosis. Findings leave no doubt regarding the distinction between hypnosis and sleep. (See for example the summary by Weitzenhoffer, 1953.)

The layman's failure to distinguish between sleep and hypnosis is aggravated by the fact that many workers use the word "sleep" when inducing trance. This confuses the driver when questioned about his unusual experiences while driving. It is clear from the evidence presented, however, that

drivers who can use the terms "trance" or "hypnosis" meaningfully readily recognize that what happens to them are trance rather than sleep reactions. A large percentage of drivers readily agree that they "nod," "feel drowsy," or "go woolgathering" on a long trip but are too unfamiliar with the nature of hypnosis to separate trance episodes from authentic sleep episodes. (This distinction, however, should not be construed to mean that sleep may not be a cause of highway accidents. It merely means that the condition which laymen call "sleep" may, unwittingly, include instances of hypnosis.)

V

It has been demonstrated by the writer that driving can be successfully carried out in trance. Two students (on separate occasions) were placed in a deep trance and told to drive. Both successfully carried out the operations necessary for driving. For one, this included turning around on a road so narrow that backing the car was necessary, and negotiating a narrow, two-lane bridge. While in trance, this student had been told that the responsibility was his, he was the driver. He was also told that he would not recall the ride. During the ride, he was told that another car was approaching when there was none in sight. When this was mentioned, he pulled over toward his side of the road. At the end of the ride, he could not recall anything that had happened on the trip. In the other case, the student carried out similar activities and then drove on to a city street with a normal flow of traffic and cars parked on both sides. In each case, it was noticed that the reaction of changing gears and applying brakes was considerably slower than normal — nothing had been mentioned regarding these activities. These cases showed conclusively that driving can take place while in a trance (Williams, 1948; Williams, 1949).

VI

While some subjects readily enter trance in almost any setting, others are easily distracted by a knock on the door, a telephone ringing in an adjoining office, or movements on the part of an assistant. It is not surprising, therefore, that some drivers experience little or no difficulty on superhighways. They find sufficient distraction in the scenery or in mental activity. Another group of drivers have formed a habit of stopping for rest or refreshment at stated intervals. This group, however, might find it difficult to tell why they have developed this habit except perhaps vaguely to comment that "it seems better that 'way"; i.e., an intuitive pragmatic justification.

Distraction within prescribed limits seems, within our present limited

knowledge, the best way to avoid highway hypnosis. Too little distraction causes trance inductive monotony, while too much distraction would probably divert the driver from his task and create other hazards. There thus would seem to be an optimum range within which alertness can be maintained. The car radio may become either an advantage or a disadvantage: if too soft, uninterrupted music may be only one more monotony-inducing factor; but if tuned to a controversial discussion, the message may command too much of the driver's attention.

Experienced drivers resort to a variety of empirically evolved preventive methods. All of these methods make use of some form of distraction. Some grasp the cab door or rear-view mirror and find that the sharp current of air over the arm helps to keep them alert. Others open the window intermittently for the same purpose. Another expedient is to remove the gas pedal, the sharp strut thus presenting a point for pressure on the foot which replaces the flat surface of the pedal. A variation of this is the practice of removing the right shoe so that the foot is stimulated more actively. When a helper rides in the cab, he can engage the driver in direct conversation, an active interplay which is probably the most effective method. Those who must drive alone often resort to singing, munching, or "talking to themselves."

Many tentative suggestions have been made for changes in roadway construction. Changes and improvements in landscaping would avoid monotonous sameness in scenery as would variation in the width, and in the shrubbery of the center island. A difference in the levels of the two opposing roadways is also possible in certain spots. For the roadbed itself it has been suggested that "jiggle bars," i.e., slightly corrugated or washboard areas be introduced at irregular intervals, or that areas of concrete be alternated with areas of asphalt. But perhaps in the long run the best solution to the problem will only come from collaborative research between students of traffic safety and scientists disciplined in the phenomenon of hypnosis.